
# II. READINESS

**Mr. Secretary, in August of 2004, you recognized that USUHS' academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies. In addition, USUHS is recognized by the Association of American Medical Colleges (AAMC) as the one place where physicians of tomorrow get thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism. USUHS students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of a suspected exposure... As our Armed Forces are being deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment.**

- ***United States Senators:*** **The Honorable Paul S. Sarbanes; The Honorable Barbara A. Mikulski;** ***Members of the United States House of Representatives:*** **The Honorable Chris Van Hollen; The Honorable Benjamin L. Cardin; The Honorable Elijah E. Cummings; The Honorable Steny H. Hoyer; The Honorable C.A. Dutch Ruppersberger; The Honorable Albert R. Wynn,** Letter to the Secretary of Defense, April 1, 2005.

**I** (have) **witnessed the horrific, combat-related death and maiming of soldiers. The importance of military medicine first became evident to me from experiences as a line officer** (during combat in Vietnam)**. Modern military operations require physicians and surgeons to be deployed forward on the battlefield in order to return combat soldiers to duty as quickly as possible and minimize the loss of life and limb among the seriously wounded. This new kind of battlefield requires a new type of**

**medical officer - a professional military medical officer who is trained to be an integral part of the forward combat team as it maneuvers over large distances to engage the enemy. USUHS is the only institution in the nation that produces professional military medical officers who are specifically trained to care for our men and women in uniform during combat operations. In this regard, it is a precious national resource.**

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member, USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

**For many years, The Military Coalition has committed its support for the Uniformed Services University of the Health Sciences (USUHS). The Coalition would sincerely appreciate your continued attention and ongoing support for our Nation's only Federal university dedicated to medical readiness… The Secretary of Defense refers to the USUHS graduates as the "backbone" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies... Fifty-one percent of physicians with the Army Special Operations Forces are USUHS School of Medicine (SOM) alumni; and, one out of every three physicians with the Special Operations Forces across the Army, Navy, and Air Force are USUHS SOM graduates. The MHS could not easily identify or hire civilian physicians who would accept the critical risks associated with combat care.**

- **The Military Coalition, Signed by 35 Military Associations,** Letter to the Under Secretary of Defense for Personnel and Readiness, April 13, 2005.

**In December of 1998 and 2001, the Association of American Medical Colleges confirmed the critical role of USUHS in national security by recognizing that USUHS is the one place where physicians of tomorrow, obtain today, thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism. USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, and medical responses to terrorism, courses not available through civilian medical schools. Today, USUHS alumni are globally deployed and providing essential care for our Armed Forces in every theater of operation... Over the past 13 years USUHS has gained recognition and evolved into the Academic Center for Military Medicine... Today, USUHS prepares its career-oriented physicians, advanced practice nurses, and scientists for the practice of health care in contingency environments. USUHS alumni possess the essential knowledge, skills, and attitudes required during Joint Service deployments. Relevant knowledge in the psychological stresses of combat and trauma and the medical effects of nuclear, chemical, and biological weapons and extreme environments have been integrated throughout the USUHS educational programs.**

- **The Honorable Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.,* Congressional Record, July 6, 2004, page S7575.

**In my last 6 months, here in Afghanistan, I have diagnosed and/or treated malaria, typhoid fever, polio, retinoblastoma, leptospirosis, leishmaniasis, rickets, kwashiorkor, beri-beri, extra pulmonary and pulmonary tuberculosis, a variety of intestinal parasites, frostbite, mumps, and rheumatic fever. My education at USUHS prepared me to recognize and treat these diseases, many I had never seen in the United States, that are common in areas where we currently conduct military operations...**

**Special Operations Forces are dedicated, professional, fit and highly trained individuals. A high degree of professionalism and military bearing are the standard. USUHS provides** (the) **SOF with military physicians who fit in and excel in this community... Physicians in the Special Operations Forces community are at times required to operate well forward in austere environments with very little ancillary support. They often encounter problems without a *book* solution. The USUHS curriculum prepares you for this.**

- **Major Robert Mabry, MC, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces, Afghanistan,** Correspondence with USU, April 13, 2005.

# Kerkesner

**The National Military Veterans Alliance (NMVA), a group of 29 member associations, has strongly supported the continuation and expansion of the Uniformed Services University of the Health Sciences (USUHS). The NMVA would sincerely appreciate your continued attention and on-going support for our Nation's ONLY Federal university dedicated to medical readiness and the provision of continuity and leadership for the Military Health System (MHS)… The Congress established USUHS to provide continuity, leadership and ensure medical readiness for the MHS. The MHS requires a steady source of highly competent, uniquely trained, deployable military physicians and advanced practice nurses. Congress created USUHS and the Armed Forces Health Professions Scholarship Program (HPSP) to cost-effectively meet this requirement in the absence of a physician draft; this combination has well served the Nation. USUHS successfully provides a corps of career-oriented uniformed medical officers; the HPSP has provided the larger portion of physicians who complete their obligated service and leave active duty for the civilian sector… As our Armed Forces continue to be deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment. USUHS has proven to be an essential component of medical readiness for the MHS. The National Military Veterans Alliance respectfully requests that the Congress encourage the Department of Defense to continue in its strong support for USUHS.**

- **The National Military Veterans Alliance, Composed of 29 Member Associations,** Letter to **The Honorable Ike Skelton, United States House of Representatives,** March 28, 2005.

# Kerkesner

## II. THE F. EDWARD HÉBERT SCHOOL OF MEDICINE

**I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences... this institution's alumni provide the backbone of the senior leadership of the three services' medical departments.**

**Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic.... Other programs at USUHS in nuclear and biological warfare defense and operational medicine simply do not exist at any of the Nation's civilian medical schools. At no other institution are medical students taught about the medical response to weapons of mass destruction...**

**USUHS graduates have demonstrated a commitment to serving their country in numbers and to a degree that is unrealistic to expect from civilian physicians. At a time when this nation's military operations are diverse and changing, we need a corps of dedicated individuals who are trained and willing to respond to these challenges.**

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Office of the Secretary of Defense, April 27, 2005.

### ESTABLISHMENT

**Background.** From 1945 to 1950, there was an acute deficit of medical experience resulting from the rapid downsizing after World War II. The loss of physicians was so acute, and retention so poor, that the Army and Navy medical departments began residency programs as a recruitment and retention device. In 1950, the physician shortages forced the involuntary recall of reservists and also forced the retention of those eligible to retire.

After the Korean War, the United States, for the first time in peacetime, maintained large, active-duty military forces through conscription and allocated significant resources to build and maintain a world-wide military presence. The medical departments of the Army, Navy, and Air Force participated in this expansion and relied on conscription. During this time, over 90 percent of all graduating physicians and dentists served on active duty for an average of two years.

During the conflict in Vietnam, from 1964 to 1972, medical support of a sophisticated nature was deployed in fixed facility hospitals with staff and equipment equal to those of academic medical centers in America. The helicopter essentially replaced the motor ambulance for evacuation; and, air evacuation to the United States became routine. Capitalizing on the lessons learned in past wars, preventive medicine kept the infectious disease and non-effectiveness (*inability of the forces to participate in combat activities*) rates at the lowest levels of any war, while rapid evacuation and advanced surgery reduced the died-of-wounds rate.

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**The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426.** The conscription of physicians, which began in 1950, ended in 1973 when the draft law was repealed. In anticipation of this, both a military medical school, the Uniformed Services University of the Health Sciences (USU), and a Health Professions Scholarship Program (HPSP) in civilian medical schools were established by Congress in 1972 to provide physicians for the Armed Forces. The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426, established the HPSP Program to be a flexible source for the *quantity* of physicians required by the Armed Forces; USU was established to provide a cadre of military medical officers who would serve as *career officers*, providing continuity and leadership for the Military Health System.

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**USU's First Academic Program.** The F. Edward Hébert School of Medicine was established by Congress as part of Public Law 92-426 in 1972, with its first class graduating in 1980. The early development of the University concentrated on USU's first academic program, the School of Medicine (SOM). **Anthony R. Curreri, M.D.,** was appointed as the University's first President in 1974. **Jay P. Sanford, M.D,** joined **Doctor Curreri**, at the USU President's request, and was later appointed as Dean, SOM, in May of 1975; he served as Dean through 1990.

The initial development of objectives for the SOM was accomplished through the combined efforts of the Board of Regents (BOR), the BOR Educational Affairs Committee, Doctors Curreri and Sanford, and special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: ***the Surgeons General*** of the Army, Navy and Air Force; ***Chiefs of the Medical Departments/Services*** of the Army, Navy, and Air Force; ***physicians from*** the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow Air Force Medical Center at Andrews Air Force Base, the Wilford Hall United States Air Force Medical Center, the United States Army Academy of Health Sciences, Sheppard Air Force Base Academy of Health Sciences, Brooke Army Medical Center, and the Armed Forces Institute of Pathology; ***the Service Secretaries*** from both the Air Force and Navy; the Association of American Medical Colleges (***AAMC***); the American Medical Association (***AMA***); the Liaison Committee on Medical Education (***LCME***); the Department of Health, Education, and Welfare (***HEW***); the National Institutes of Health (***NIH***); and, the following ***Universities***: George Washington, Georgetown and Howard.

Five Individuals Have Served as the Dean, SOM. The USU Board of Regents reviews the final candidates for the Dean of the SOM prior to selection by the USU President. To date, five individuals have held this position:

**Jay P. Sanford, M.D.,** was appointed as the first Dean, SOM, in May of 1975 and served through 1990;

**Harry C. Holloway, M.D.,** served as the **Deputy Dean** from 1990 through June of 1992;

**Nancy E. Gary, M.D.,** was appointed as Dean on June 28, 1992 and served through mid-1995;

**Val G. Hemming, M.D.,** served as Interim Dean from July 2, 1995 through May 3, 1996; and, following a national search, served as Dean from May 3, 1996 through May 19, 2002; and,

**Larry W. Laughlin, M.D., Ph.D.,** was appointed as Dean on May 20, 2002 and continues to serve in that position.

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**MISSION**

**The USUHS shall: 4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences; 4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces; and, 4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.**

- **DoD Directive 5105.45,** approved by the **Honorable John J. Hamre, Deputy Secretary of Defense**, dated March 9, 2000, page 2.

**Consistent Mission Direction Focused on Readiness.** USU has a thirty-three year history of guiding statements, mission direction, goals and tasking documents from the Congress, the Executive Office of the President, and the Department of Defense. From the words of the School of Medicine's "Founding Father," **Congressman F. Edward Hébert**, ... as he described how he first envisioned the University during the 1947 timeframe:

**The mission of USUHS is to produce... dedicated young officers who... will be able to mobilize and deploy rapidly... to meet military and civilian crises... The University will provide opportunities for aspiring young military officers to attain academic recognition..."** (the Life and Times of Congressman F. Edward Hébert, 1976, page 408)

to the mission statement of March 9, 2000, quoted above from the Department of Defense Directive for USU... the goals of the USU SOM have remained consistent. The USU SOM must provide: 1) a cadre of career-oriented physician officers who will provide leadership and continuity for the Military Health System (MHS) and the United States Public Health Service; 2) unique training in: combat medical care; trauma; mass casualties; the response to chemical, biological, radiological, nuclear, and explosive (CBRNE) contingencies; medical logistics; and, rapid deployment; 3) joint training in a multi-Service environment; and, 4) the opportunity for health care professionals throughout the MHS to attain academic recognition.

**Modern military operations require physicians and surgeons to be deployed forward on the battlefield in order to return combat soldiers to duty as quickly as possible and minimize the loss of life and limb among the seriously wounded. This new kind of battlefield requires a new type of medical officer - a professional military medical officer who is trained to be an integral part of the forward combat team as it maneuvers over large distances to engage the enemy. USUHS is the only institution in the Nation that produces professional military**

**medical officers who are specifically trained to care for our men and women in uniform during combat operations.**

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member of the USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

Strategic Planning. A formal process of strategic planning was initiated, in 1991, to set priorities for the University. The process was conducted by an executive steering committee chaired by the USU President and included representation from the entire USU community. Mission and vision statements and guiding principles were completed in early 1992. Since that time, as part of an evolving process, specific goals, strategies, and objectives have been established for the University, to include metrics for achieving those goals.

The SOM community has been actively involved in the development of the USU Strategic Plan by: participating in the initial strategic planning training sessions during 1991; finalizing the objectives and metrics during 1999 and 2000; and, engaging in on-going strategic planning sessions held during April of 2001, December of 2002, and throughout 2003. This multi-year process has included institutional retreats, town meetings, departmental briefings, and printed and electronic updates as a means of communicating with the SOM faculty and staff. The SOM stands ready for continued University-wide strategic planning initiatives upon the arrival of the University's fifth President, Charles L. Rice, M.D.

To ensure that the SOM's future direction is consistent with that of its chain-of-command, the SOM strategic planning process is guided by the current strategies and goals of the MHS, which reflect the strategic planning policies and guidance established by the Office of the Assistant Secretary of Defense for Health Affairs. A formal process for identifying program needs and for submitting increased budget requests tied to the Strategic Plan has been established at USU. The individual SOM Departments must show a direct relationship with the University's overall Strategic Plan when submitting their requests for future budgets. In addition, a School of Medicine Strategic Plan has been written that is in compliance with the University's current strategies and goals; the SOM Strategic Plan has undergone review by the Basic Science Chairs Committee, the Clinical Science Chairs Committee, and the Faculty Senate.

Internal and External Departmental Review Process. A program was adopted by the School of Medicine in 1998, which mandated each department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2004, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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**Mission Accomplishment...SOM Graduates Provide Continuity and Leadership for Military Medicine.**

Retention of SOM Alumni and Their Unique Training Ensures Continuity for Lessons Learned in Military Medicine.

***Ten Years of Congressional Testimony by the Surgeons General and the United States Congressional Record Validate that USU Alumni Ensure Continuity for the MHS.***

**As of April 2004, the USUHS SOM alumni averaged approximately 20 years of active duty service and represent 22.2 percent of the 11,901 physicians on active duty. The Center for Navy Analysis has reported that where the median length of non-obligated service for physician specialists is 2.9 years, the median length of non-obligated service for USUHS SOM alumni is 9 years, making USUHS the most cost-effective and recommended accession source for leadership positions and ensuring continuity in the military health system.**

- **Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.*, Congressional Record, July 6, 2004, page S7575.

**The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses, and scientists with military unique expertise. The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families.**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Total Force, March 27, 2003.

**The extraordinary retention of these military officers** (USUHS alumni) **ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care... Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS...**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

**I believe our opponents don't understand our business... they say medical care, and they envision peace time medical care as the only business we are in. In fact, we have two broad categories of business. One is called readiness. The other is called the peace time benefit.**

**USUHS, is the best investment in readiness medicine that we can make,** (it) **provides a tremendous baseline for us. We train our uniformed services graduates in the benefit missions through residencies, but they** (USUHS graduates) **have a foundation in readiness that we cannot get anyplace else. We don't practice medicine in the military. We practice military medicine.**

- **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

**In Vietnam... I had no military training prior to coming in. It was a very challenging, difficult experience... when I got there I learned how to take care of Marines myself. I was alone. There was no place to med-evac patients, so through the night I had to keep casualties alive until we could move them during the daylight... The emotional experience of a young doctor who does not have the right kind of training in these kind of things has driven me to where I am today.**

**My whole life since that time has been dedicated to try to prepare people for combat, and USUHS has been able to train these young physicians to be far more ready than I was. They are superb in medicine. The training that USUHS provides is far more than just the medical training. What we have here is the ability to train Army, Navy and Air Force and Public Health Service physicians from day one to work together in a joint environment. They go and they jump out of airplanes with the Army, they go with us to the Marine Corps, they go with us aboard ships at sea, and they go to the air. They do all these things together... from day one... so they develop a joint mentality that has a value of which you cannot quantify the cost of. So, when the time came for me to select a doctor who was going to go on the Joint Task Force for Somalia, I chose a USUHS teacher, ...one who had been there, who spoke the language, who was able to do joint planning and to effectively bring the troops to Somalia. You cannot cost that out...the value of having people with this kind of training is really irreplaceable. There are many, many, many courses and experiences at USUHS that are just not duplicatable. It is a national resource. They come as leaders... they are dedicated to stay with us for a long time... We want experienced people to stay in the military... Now that we have USUHS, we cannot give that up.**

- **Vice Admiral Donald F. Hagen, Surgeon General of the Navy,** Testimony before the Senate Armed Services Committee, March 2, 1994, pages 35-37.

***USU SOM Alumni Represent 22.7 Percent of the Total Active Duty Physicians in the Army, Navy, and the Air Force.*** Since its first graduation in 1980, through April of 2005, USU has granted 3,587 medical degrees; 2,695 of those graduates remain on active duty in the Uniformed Services: Army - 1,035; Navy - 780; Air Force - 792; USPHS - 88.

The active duty physician force in the MHS currently totals approximately 11,495 physicians (Army - 4,140; Navy - 3,855; Air Force - 3,500). The 2,607 USU SOM Graduates on active duty in the Army, Navy, and Air Force represent 22.7 percent of those 11,495 physicians. The early founders had hoped that the USU graduates would equal at least 10 percent of the total physician force; the USUHS SOM has more than doubled that original milestone. USU has steadily proven to be an excellent source for career-minded physicians who are uniquely skilled in the practice of military medicine.

***USU SOM Alumni Provide Outstanding Retention Rates.*** Congress had envisioned a retention rate close to 70 percent; USU SOM alumni have more than exceeded that milestone. For example, the retention rate for USU SOM graduates from the Classes of 1990 through 1999, is 88.8 percent. During a time of war, such retention rates are of significant importance to the MHS; ***career-oriented physician specialists are critical for continuity, leadership, medical readiness and quality care and USU SOM alumni are meeting that special requirement***. For example, the median length of ***non-obligated service for physician specialists in the Military Health System, not including USU graduates, is 2.9 years***; however, ***the median length of non-obligated service for USUHS graduates is 9 years***. These retention rates become even more significant in light of the recruitment and retention concerns currently reported by the Army Surgeon General:

> **Accession of Health Care Professionals into our Active force is becoming a more significant challenge. We are starting to see a downturn in our Health Professions Scholarship applicants for both the Medical and Dental Corps... Likewise I am concerned about the retention of health care professionals...** (*Currently, the DoD Health Professions Scholarship Program (HPSP) has less than one applicant per slot, while USU has over ten initial applicants per slot resulting in a strong selection pool during the final selection of matriculants*.)
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> - **Lieutenant General Kevin C. Kiley, Surgeon General of the Army,** Testimony before the Senate Committee on Appropriations, Subcommittee on Defense, May 10, 2005, page 6.

> **The AMA vigorously supports the continuance of USUHS because we believe it is vital to the continued strength, morale, and operational readiness of the military services... In a time of widely-held fears of a looming shortage of physicians and health care providers, this retention powerhouse** (USUHS) **is an increasingly valuable resource for the Military Health Services and the Nation.**
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> - **Michael D. Maves, M.D., MBA, Executive Vice President, CEO, The American Medical Association,** letter to the Office of the Secretary of Defense, May 6, 2005.

SOM Graduates Present Clinical Skills Required for MHS Residency Programs.

***The Office of the Secretary of Defense, the Surgeons General, Deployed Alumni, and Accreditation Entities Provide On-Going Validation of the Outstanding Clinical Educational Experiences Provided at USU.***

**USUHS alumni possess, at graduation, the essential knowledge, skills, and attitudes required during Joint Service Deployments.**

- **The Honorable Donald H. Rumsfeld, Secretary of Defense,** Narrative Statement and Citation to accompany the Distinguished Civilian Service Award, presented on August 2, 2004.

**I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** Letter to the USU President, July 22, 2003.

**I echo the assessment of USUHS provided by the Secretary of Defense on March 22, 2001: *The training USUHS students receive in combat and peacetime health care is essential to providing superior force health protection... USUHS is a unique national asset and a vital integrated part of the Military Health System*.**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

**The system in place for the documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate.**

- **Liaison Committee on Medical Education (LCME)**, Letter to USU, dated April 6, 2002.

**Senator, the three of us (Surgeons General) make up the Executive Board for the Uniformed Services University of the Health Sciences (USUHS), and we have a direct impact on the university... over the last eight years, as I have commanded a major medical center and also as the Surgeon General, I have learned of the quality of the product of USUHS and the focus that USUHS has on military medicine and the importance** (of USUHS) **to the Surgeons General. I would be hard put to be without the graduates of USUHS.**

- **Vice Admiral Richard A. Nelson, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

**USUHS is a dramatic difference in depth and degree and experience and exposure and immersion in what we call military medicine, that is not available in the civilian community. My experience has been we have uniformly superior products in the** (USUHS graduates)**. I happened to be stationed on an Army post before I came here, with a small clinic run by a young doctor. I saw the difference between his predecessor and himself, the USUHS graduate. He hit the ground running and turned the clinic around in just a few short weeks. It made a lasting impression on me.... From the clinics to the largest Air Force hospital in this country, Wilford Hall, USUHS graduates excel... A third of the USUHS graduates at Wilford Hall are in positions of high responsibility for their grade... I like what I see.**

- **Lieutenant General Alexander M. Sloan, Surgeon General of the Air Force,** Testimony before the Senate Armed Services Committee, March 2, 1994, page 37.

***2004 AAMC Medical School Graduation Questionnaire Results Validate that USU Graduates Are Highly Satisfied with their Medical Education.*** Evidence of the high quality of training that SOM students have received comes from many sources. For example, each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. ***Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received.*** The USU Office of Student Affairs reported that the ratings of the Year 2004 Medical School Graduation Questionnaire show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. For example, 61.1 percent of the USU SOM seniors "strongly agreed" with the statement, *Overall, I am satisfied with my medical education*. Whereas, when averaging the replies from all responding medical schools in the United States, only 38.6 percent rated the statement as "Strongly Agree."

***2004 Joint Service Graduate Medical Education Selection Board Results - 76 Percent Receive First Choice in Specialty.*** Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. In December of 2004, the Office of Student Affairs reported that the results of the 2004 Joint Service Graduate Medical Education (GME) Selection Board for the USUHS SOM Class of 2005 were favorable. The overall selection rate for FIRST CHOICE programs was 66 percent; 112 out of 168 USU students matched for their first choice both in

specialty and training site. Sixteen additional students received their first choice in specialty for a resulting total of 76 percent who received first choice in specialty. Feedback obtained from residency program directors indicates that SOM graduates are consistently recognized as well-prepared to complete graduate medical training.

***USU SOM Students Pass the 2004 United States Medical Licensing Examination Step 2 at a Rate of 93 Percent.*** USU SOM students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates equal to, or higher than, the national average. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The Step Examinations are administered at Prometric Testing Centers throughout the calendar year. Most of the USU fourth-year students (SOM Class of 2005) completed the Step 2 CBT between July and September of 2004. The overall performance for the Class of 2005 was strong; the average score for the class was 213 and the pass rate was 93 percent.

Operational Assignments, Leadership Positions, and Unique Understanding of Military Medicine Are Substantiated.

***Military Associations, the Surgeons General, the United States Congress, and the Office of the Secretary of Defense Confirm the Critical Requirement for USU SOM Alumni in the MHS.***

**The American Legion urges the Department of Defense to retain and expand the Uniformed Services University of the Health Sciences (USUHS) as a reliable and valuable source of uniformed physicians, advanced practice nurses and scientists dedicated to careers of service in the Army, Navy, Air Force and the United States Public Health Service... The American Legion, in its adopted mandates, traditionally does not take positions with regard to specific bases and installations. However, the Uniformed Services University of the Health Sciences, in our view, is uniquely critical to long-term military medical readiness and a true national asset.**

- **Thomas P. Cadmus, National Commander, The American Legion,** Letter to the Secretary of Defense, April 8, 2005.

**For many years, The Military Coalition has committed its support for the Uniformed Services University of the Health Sciences (USUHS)... The Secretary of Defense refers to the USUHS graduates as the "backbone" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies... As our Armed Forces continue to be deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment.**

- **The Military Coalition, Signed by 35 Military Associations,** Letter to the Office of the Secretary of Defense, April 13, 2005.

**Thank you for the 2002 Edition of the USU Journal. Your record of accomplishments is truly impressive. Never has the need been greater to provide top quality professionals for our Military Health System. The men and women serving in Iraq and in other challenging assignments around the world are in good hands... What you do is so important to the future of our nation.**

- **Kenneth A. Goss, Colonel, USAF (Retired), Director, Government Relations, The Air Force Association,** Letter to USU, November 3, 2003.

**These USUHS alumni serve in critical roles that are vital to the readiness mission of the Military Health System (MHS). The extraordinary retention of these military officers ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care. Currently, USUHS School of Medicine alumni represent over twenty-one percent of the total physicians on active duty in the military services. Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS.** (*As of April 2005, the USU SOM alumni represent 22.7 percent of the total physicians on active duty in the Armed Forces*.)

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy**, Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

**Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, and the American Association of Medical Colleges and the American Medical Association to accomplish these important and timely educational goals.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, November 7, 2001.

**As for recruiting, we have some of the best programs in the world. The young men and women who are coming out of the Uniformed Services University of the Health Sciences are absolutely superb!**

- **Lieutenant General James B. Peake, Surgeon General of the Army**, Military Medical Technology, Volume 4, Issue 6, 2000, page 18.

**Do I value USUHS?... I value it a great deal and** (consider that) **it is a major asset to this country. I do value the output. I can tell you that in the Army we have a deficit of training in the type of individuals who can go into combat with a battalion... and I do get complaints from line officers that we very frequently have physicians in there who are not ready for that. That is never the case when a USUHS graduate fills that bill.**

- **Lieutenant General Alcide M. LaNoue, Surgeon General of the Army,** Testimony before the Senate Armed Services Committee, March 2, 1994, page 35.

***USU SOM Alumni Hold Significant Leadership and Operational Positions Throughout the MHS.***

***Support to Military Operations:*** **The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DoD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51 % of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DoD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Briefing on USU before OSD Leadership, April 18, 2005.

**As our Armed Forces are being deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care... For example, fifty-one percent of physicians with the Army Special Operations Forces are USUHS SOM alumni. and one out of every three physicians with the Special Operations Forces across the Army, Navy and Air Force are USUHS SOM graduates.**

- **United States Senators Paul S. Sarbanes and Barbara A. Mikulski; Congressmen Chris Van Hollen, Benjamin L. Cardin, Elijah E. Cummings, Steny H. Hoyer, C.A. Dutch Ruppersberger, and Albert R. Wynn,** Letter to the Secretary of Defense, April 1, 2005.

**Physicians in the Special Operations Forces community are at times required to operate well forward in austere environments with very little ancillary support. They often encounter problems without a *book* solution. The USUHS curriculum prepares you for this.**

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

**Brigadier General Bill Fox, MC, USA, USU SOM Class of 1981, was selected as Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command, Fort Sam Houston, Texas.**

- USU Medicine, *Class Notes*, Fall 2003, page 28.

**Brigadier General Bill Germann, USAF, MC, USU SOM Class of 1982, was selected to command the 89th Medical Group (Malcolm Grow United States Medical Center), Andrews Air Force Base, Maryland.**

- USU Medicine, *Class Notes*, Spring 2003, page 31.

**Colonel Thomas Travis, USAF, MC, USU SOM Class of 1986, was promoted to Brigadier General during a ceremony held on September 3, 2004. Colonel Travis is the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks AFB), Texas.**

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *USU Alumnus Earns First Star*, Summer 2004 Edition, page 5.

**Colonel Michael Spatz, USAF, MC, USU SOM Class of 1983, Deputy Assistant Surgeon General for Medical Force Development, Medical Corps Director, and Chief, Air Force Medical Service Education and Training, Office of the Air Force Surgeon General,** oversees all force development for the medical corps, to include medical student training and scholarships, graduate medical education, promotions, assignments, special pays, recruiting and retention, as well as all education and training for the Air Force Medical Service.

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *Class Notes*, Summer 2004 Edition, page 32.

**Colonel Bryan Funke, USAF, MC, USU SOM Class of 1985,** transferred from his position as **Commander of the 14th Medical Group, Columbus Air Force Base, Mississippi,** to assume responsibilities as **Commander of the 25th Medical Group, Misawa Air Base, Japan. He is currently serving as the Central Air Forces Forward Surgeon in the Middle East.**

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *Class Notes*, Summer 2004 Edition, page 32.

**CAPT David Wade, MC, USN, USU SOM Class of 1981, is the Force Medical Officer, Commander-in-Chief, United States Navy, Europe.**

**COL Rhonda Cornum, MC, USA, USU SOM Class of 1986, is the Commander, Landstuhl Regional Medical Center, Germany.**

- **Sharon Willis, USU Alumni Affairs**, E-Mail, *Alumni in Significant Leadership Positions*, November 7, 2003, 3:05 PM.

The highly dedicated USU graduates are earning promotions at above average rates; they have become well-respected in their medical specialties, and hold significant positions of leadership in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Afghanistan and Iraq, and to assignments aboard ships at sea and with the Blue Angels. SOM alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty members, retirees, and their family members. These military physicians and the thousands of other health professionals who have taken advantage of the numerous graduate and continuing education programs provided by the SOM, are living testimony to USU's mission as the Nation's Federal Health Sciences University.

***GAO Review Documents USU SOM Alumni Meet the Special Needs of the MHS.*** Following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that **"43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles."** The GAO reviewers also pointed out that they **"perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military"** than other accession sources (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 43). Congressional testimony by the Surgeons General and Military and Civilian Associations, and tributes throughout the Congressional Record reflect that these significant findings have been validated over the past eleven years.

***USU SOM Alumni Hold a Significant Percentage of Leadership and Operational Positions in the MHS.*** A review completed in January of 1998, documented that of the approximately 1,431 USU graduates on active duty who were eligible to hold leadership positions, and were not in a post graduate educational status, 292 were serving as chairs, chiefs or heads of departments, directors of services, or program directors in military hospitals, clinics or centers. An additional 60 USU alumni were serving in operational assignments for the three military services. These 352 USU physician alumni were holding significant leadership and/or operational positions throughout the Military Health System (MHS). Another review conducted in February of 1999, documented that of the first six classes of USU graduates, from 1980 through 1985, 408 alumni remain on active duty; 170 of whom (approximately 42 percent) hold senior operational or leadership positions. In April of 2003, a preliminary review reflected that over 50 of the most significant Command Positions in the MHS are held by USU graduates. The USU Office of Alumni Affairs also conducted a preliminary review during April of 2005 and reported that 51 percent of physicians with the Army Special Operations Forces are USU SOM alumni; and, one out of every three physicians assigned with the Special Operations Forces across the Army, Navy, and Air Force is a USU SOM graduate.

**Special Operations Forces are dedicated, professional, fit and highly trained individuals. A high degree of professionalism and military bearing are the standard. USUHS provides** (the) **SOF with military physicians who fit in and excel in this community.**

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

***Reliability and Sustainability of Accession Sources:*** **Of current accession programs, USUHS is the most reliable and cost-effective source for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, required specialties and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligations. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Briefing on USU before OSD Leadership, April 18, 2005.

**It is the job of a teacher to keep bringing us back to certain basic principles. It is the moral obligation of the teacher to know his or her students, to recognize their individual needs, and to provide information, guidance, and encouragement during the learning process. The future of the medical departments appears bright when considering the quality of applicants seeking admission to the School of Medicine at USUHS. As a group, they have impressive credentials. Their application essays reflect a bright, highly motivated, and service-oriented cadre.**

- **Rear Admiral Donald L. Sturtz, MC, USN, (Retired), Professor, Department of Surgery, USU School of Medicine**, Military Medicine, *Commitment*, Volume 166, September 2001, pages 741-742.

**High ethical standards, the candidate's own `internal moral compass,' compassion, honesty, and integrity should be emphasized in the selection process for candidates to become the nation's physicians... Selection should employ MCAT scores and GPAs not as predictors of success in medical school, but as threshold measures to indicate only that applicants possess the intellectual endowment and scholastic aptitude needed to meet the academic rigors. Once candidates have satisfied those threshold requirements, we should give no further weight to academic credentials but make selections on the basis of character traits and aptitude for serving others.**

- **Jordon Cohen, M.D., President, Association of American Medical Colleges (AAMC)**, Opening Remarks, the 108th Annual Meeting of the AAMC, on November 6, 1997.

***The USU SOM Selection Process Withstands the Test of Time.*** The USU SOM selection process has been identified as one of the major factors in the success of the overall retention rates of the USU alumni. All candidates are carefully screened during the interview process to determine the following: 1) already recognized sensitivity for national, public, and/or community service, which clearly has the potential for enhancement in Federal service; 2) the presence of natural and adaptable leadership skills already documented in a variety of organizations and circumstances; 3) an enthusiasm for supportive care-giving directed at individuals and groups, forming the basis for evolvement as a physician in the broad areas of medicine, and military medicine in particular; and, 4) a documented record of academic success, which extends beyond the boundaries of any standard curriculum, as demonstrated through individual creativity, service, and/or research. A Matriculating Student Survey conducted by the Association of American Medical Colleges (AAMC) showed that compared to the national group of matriculants, USU SOM candidates were more likely to select medicine as a career because of the opportunity to serve the community and to lead, and less likely to seek a medical career for purposes of prestige or high income.

The SOM Committee on Admissions, faculty and student interviewers, and the SOM Office of Admissions work together to manage and implement the SOM Selection Process. The Committee on Admissions is comprised of men, women, active duty, civilian, clinical science, basic science, minority, and community representation for a total of 26 individuals. The applicant review process operates at subcommittee and full committee levels, with the initial review focusing on Medical College Admission Test (MCAT) scores and grade point averages (GPAs). The secondary review process is designed to enhance the opportunity for inviting applicants to interview. Candidates with academic records that would ordinarily preclude regular review at the subcommittee level and those not initially invited for interview are reviewed by the Dean of Admissions. This allows the identification of candidates who may have been overlooked and supports the SOM effort to recruit active duty military applicants, disadvantaged individuals and underrepresented minorities. Folders of all interviewed applicants are reviewed by three separate subcommittee members and are presented for full committee review if ranked above the minimum threshold.

The *interview day* is consistently reported as a positive experience by applicants; during the interview process, the applicants take part in various activities, to include: organized briefings; two formal interviews; lunch; a tour of the campus with students; and, informal visits with the Associate Dean for Student Affairs, the Assistant Dean for Admissions and Academic Records, the Vice President for Recruitment and Diversity, the Assistant Dean for Clinical Sciences, faculty members and the SOM Commandant. Applicants are also given the opportunity to stay overnight with a student host. The selection process has continuously brought to the SOM a group of students who are academically qualified and well-motivated to practice medicine. In the history of the medical school, only two percent of the student body has had to be disenrolled for academic reasons; this is about one-third of the national average. The excellent percentage of students graduating (almost 98 percent) is due to: 1) a good selection process; 2) a solid educational program; and, 3) genuine concern for those students who require academic or personal assistance during their time at USU.

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## ACCREDITATION

**Strengths:**

- **The oversight and coordination of scattered clerkship sites produce quality and comparability in a model that other medical schools should follow.**
- **Both faculty and the dean value their roles as mentors and educators of students.**
- **The students are enthusiastic about the University and for their education.**

**Commendation:**

- **The University is commended for its success in educating students to become physicians in the military thus achieving the vision of being "the pre-eminent university for military medicine."**

  - **Evaluation Team of the Middle States Commission on Higher Education,** Report to the Faculty, Administration, Trustees, Students of USUHS, USU received a 10-year accreditation with commendation, April 2, 2003.

**Early Coordination with Accrediting Entities.** The developmental process for establishing the initial objectives of the SOM were accomplished through the combined efforts of the founding USU President, **Anthony R. Curreri, M.D.**, the Board of Regents (BOR), the Dean, **Jay P. Sanford, M.D.**, and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Significant among those coordinating entities were representatives from both the Middle States Commission on Higher Education (provides accreditation at the University level, to include the SOM) and the Liaison Committee on Medical Education (LCME), which provides accreditation specifically for the SOM.

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**SOM Program Accreditation by the Liaison Committee on Medical Education.**

Background. The LCME accreditation process is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The accreditation process also fosters institutional and program improvement. The SOM received provisional accreditation from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American Medical Association (AMA) in 1976. The SOM was fully accredited by the LCME in 1979, and has continuously maintained that status.

The SOM prepared a Self-Study during 1992 and was visited by an LCME survey team during January 11-14, 1993. On April 7, 1993, the LCME voted to continue full accreditation for seven years. The Dean was asked to submit a report to the LCME by January 1, 1995, addressing: 1) progress in

curriculum reform, including decompression in the first two years; 2) the empowerment and role of the curriculum committee to review, evaluate, design, and manage the curriculum; 3) the status of filling chairs of academic departments, with special reference to the availability of space and financial resources to do so and to the energizing of education and research; and, 4) the appropriateness of enrollment size and the adequacy of clinical resources. Following the LCME request, an ongoing curriculum renewal process was initiated in June of 1993. In November of 1993, the Dean's Policy Memorandum regarding the structure and function of the curriculum committee was updated to assign responsibility to the curriculum committee in accordance with the LCME's guidance as described in Functions and Structure of a Medical School. Search committees were appointed to fill the open department chair positions. And, plans were initiated to develop third-year clerkship rotations at two additional sites. A report, submitted in December of 1994, detailed the status of progress in the four areas identified by the 1993 LCME response. The LCME accepted the report in February of 1995; and, it requested an additional report by September 1, 1996, to address the following: 1) any changes in class size stemming from the downsizing of the Uniformed Services; 2) the status of continued Federal support; 3) further progress in curricular management, evaluation, and reform; and, 4) the system and results of monitoring the equivalency of educational quality and the evaluation of students across sites of clinical education. The response, dated August 16, 1996, indicated that the class size had not been affected by the downsizing of the Uniformed Services and that Federal funding was sufficient to support the University's programs. Also, during the 1996-97 Academic Year, an additional ten percent reduction in contact hours for first and second-year students was implemented, resulting in an additional afternoon per week of student study time. In September of 1996, the LCME accepted that report; and, no further information was requested prior to the full accreditation survey scheduled for the 1999-2000 Academic Year.

The LCME Grants Continued Accreditation through 2007. Following accreditation by the LCME in April of 1993, the LCME scheduled its next review of the SOM Program for reaccreditation in November of 1999. As a precursor to that review, the Associate Dean for Medical Education coordinated an institutional Self-Study. Self-Study Committees were established during 1998, assigned topic areas, and charged to review and analyze portions of the Medical Education Database as well as other information considered relevant to their topic areas. Reports were then submitted to the Steering Committee on February 1, 1999; all reports were reviewed by both the Steering Committee and a larger LCME Task Force. All data, Self-Study reports, and the Executive Summary were submitted to the Dean during the Summer of 1999. Following the Dean's review, those materials were submitted for review to the LCME and the Survey Team Members some months prior to the Survey Team Visit. The Site Visit took place on November 14-18, 1999. Exit briefings and follow-up correspondence from the LCME suggested a successful visit and continued accreditation. Official notice from the LCME was provided on April 13, 2000: **"The School of Medicine received continued full accreditation of the educational program leading to the MD degree for a seven-year term. The next full survey will take place during the 2006-2007 academic year"** (Letter from the LCME to the USU President, dated April 13, 2000).

Excerpts from the Summary of the LCME Accreditation Report as Provided in the USU Board of Regents 2000 Report to the Secretary of Defense.

There is ample evidence that a large number of faculty and staff members had taken the self-study seriously and participated fully in the preparation of the report, which was thorough and showed meticulous attention to detail.

***In reaching its decision to continue full accreditation of the medical school, the LCME identified numerous institutional strengths:***

1. The School of Medicine is very successful in meeting its mission in graduating physicians who are well prepared and committed to military medicine;

2. The Dean holds a deep commitment to the values and success of the School of Medicine. He is a strong, capable leader who has been critically important in helping the school fulfill its mission;

3. The clinical curriculum is delivered in excellent military medical facilities, both locally and nationally;

4. The Department of Internal Medicine is to be commended for its success in creating a uniformly excellent clinical clerkship, comparable in quality across multiple educational sites;

5. The students are bright, academically talented, and uniformly dedicated to careers in military public service. They are consistently positive in their views toward their school and its faculty;

6. The support services provided by the Student Affairs Office are exceptional and appreciated by the students;

7. The faculty is available, interested and committed to student instruction and supervision. They work in a collegial fashion on behalf of the School of Medicine and the students; and,

8. The library, computer services, and the new simulation center are state-of-the-art, meeting the educational demands of the students for the future.

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**2002 Progress Report Receives Commendations from the LCME.**

**At its meeting on April 3-4, 2002, the Liaison Committee on Medical Education (LCME) reviewed and accepted with appreciation your progress report on the documentation of the comparability of clinical educational experiences across clerkship sites.... The system in place for documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate. Your next full accreditation survey is currently scheduled for the 2006-2007 Academic Year.**

- **The Liaison Committee on Medical Education,** Letter to the Dean, School of Medicine, dated April 6, 2002.

In its correspondence dated April 13, 2000, the LCME requested that the Dean of the SOM submit a progress report by March 1, 2002, addressing the following items: documentation of the comparability of clinical experiences across clerkship sites; planning and documentation of resources to support ongoing curriculum design and oversight and enhanced centralized faculty control and management of the curriculum;

and, planning for facility improvements for research and education, including progress in addressing the limitations in research laboratory space, office space, and adequate space for small group instruction in the first two years.

The Dean of the SOM began initiatives to enable a timely response to the LCME's request for a progress report. In late April of 2000, the Dean met with the Curriculum Committee and charged its members to develop a plan to further enhance the process of curriculum oversight and management. This new plan was implemented at the beginning of the 2000-2001 Academic Year. The Associate Dean for Clinical Affairs was directed to develop a plan for documenting comparability of clinical experiences across clerkship sites. This task was accomplished in conjunction with the SOM clinical department chairs and hospital-based faculty. The SOM Space Review Committee developed and implemented processes for the review and assessment of space utilization. Baseline data was reviewed and recommendations were provided to improve assignment and utilization of existing space. This process, together with the additional use of 20,000 square feet of laboratory space on the grounds of the National Naval Medical Center and the addition of an approved construction project (41,055 square feet) in the Medical Military Construction Program for Fiscal Year 2006, demonstrated the SOM's progress in addressing space utilization concerns. On February 25, 2002, the USU SOM provided its progress report to the LCME. On April 6, 2002, the Dean, SOM, received notice from the LCME that it had "reviewed and accepted with appreciation the progress report on documentation of the comparability of clinical educational experiences across clerkship sites, planning and documentation of resources to support curriculum design oversight, enhanced centralized faculty control, management of the curriculum, and planning for facility improvements for research and education." The LCME informed USU that the next full accreditation survey is scheduled for the 2006-2007 Academic Year.

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**SOM Dean Implements a Review and Revision of Educational Objectives for Compliance with LCME Guidance.** During the past year, the Dean of the SOM appointed a subcommittee of the Executive Curriculum Committee (ECC) to review and revise the 1998 educational objectives and ensure compliance with the LCME's *Functions and Structure of a Medical School*, published in September of 2003. A draft report was to be submitted to the ECC for comment and then distributed to the faculty for their review and comment; then, the final document was to be submitted to the Dean for approval/disapproval. **William Haffner, M.D., CAPT, USPHS (ret.), Professor and Former Chair of Obstetrics and Gynecology,** was selected to chair the subcommittee.

The revised LCME Standards for Accreditation require that ***educational objectives state what students are expected to learn, not what is to be taught; that student achievement... must be documented by specific and measurable outcomes; and that objectives and associated outcomes must address the extent to which students have progressed in developing the competencies that the profession and public expect of a physician***. The LCME also requires that ***objectives for clinical education must include quantified criteria for the types of patients (real or simulated), the level of student responsibility, and the appropriate clinical settings needed for the objectives to be met; and, that the objectives of the educational program must be made known to all medical students and to the faculty, residents, and others with direct responsibilities for medical student education***.

The subcommittee met with the ECC, the Basic Science Chairs, and the Clinical Chairs to define the scope of the revision process. It was determined that a major curriculum redesign was not required; but, that the existing 1998 educational objectives should be brought into compliance with the LCME guidelines,

particularly regarding measurable outcomes. During 2004, the subcommittee reviewed national measures of general competencies, including the AAMC's Medical Schools Objectives Project (MSOP) and the Accrediting Commission for Graduate Medical Education (ACGME) - ABMS Outcomes Project. In addition, the subcommittee reviewed the objectives from other schools of medicine. It was decided that the ACGME General Competencies reflected those measures of competencies that are most widely recognized among educators of medical students and residents in the United States.

The subcommittee re-ordered the ACGME General Competencies to meet the USU SOM educational mission by emphasizing that medical and population health knowledge is the first objective, followed by interpersonal and communications skills, patient care, practice-based learning and improvement, professionalism and officership, and system-based practice. To best fit the mission of the University and the SOM, population health was added to the medial knowledge objective and officership was added to the professionalism objective. The current 1998 objectives were then sorted so as to best fit within the most appropriate of the six general competencies and reworded into more measurable terms. The draft revision was circulated electronically to all faculty and medical students and input from all who provided comments was incorporated into the final document following subcommittee review.

The subcommittee also determined that a *Statement of Purpose*, or preamble to the objectives document, would assist in better framing the context for the students and faculty. The Statement of Purpose delineates that the USU SOM: selects applicants who demonstrate great potential as future physicians and a strong commitment to military medicine and public health; provides a student-centered educational program; acquaints students with the various career options through the provision of special experiences throughout their training; provides rigorous, comprehensive curricula in preventive medicine/public health and military/operational medicine; and, maximizes the students' preparedness to meet the general competencies of the ABMS and ACGME, pass the USMLE as required for graduation and licensure, and assure integration of the principles of officership as well as the knowledge, skills, and professionalism expected of uniformed medical officers.

***In the priority area of medical and population health knowledge, the eight objectives state*** that SOM graduates must demonstrate knowledge about established and evolving biomedical, clinical, epidemiological, and social-behavioral health sciences and the application of this knowledge to patient care and population health. ***The three objectives covering interpersonal and communications skills*** state that graduates must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates. ***Patient care objectives (eleven)*** describe that graduates, while still under appropriate levels of supervision, must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. ***Practice-based learning and improvement objectives (seven)*** state that graduates must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. ***The six professionalism and officership objectives*** state that graduates must demonstrate commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Finally, ***the seven system-based practice objectives*** state that graduates must demonstrate awareness of, and responsiveness to, the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

The subcommittee submitted the draft revisions of the educational objectives to the Dean of the SOM, as reported to the Faculty Senate in July of 2005. Following his approval, the Dean will next task the ECC to work with the department chairs and course/clerkship directors to develop outcome measures for implementation, as appropriate, for each department/discipline covering each of the 42 objectives. The

resulting outcome measures will be analyzed by the ECC, which will provide guidance to the course/ clerkship directors reference any modifications that are required to meet the objectives or, alternatively, to reassess the objectives themselves through an on-going, continuous improvement process.

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**Additional Accrediting Entities Provide Quality Assurance.** In addition to the University's accreditation by the Middle States Commission on Higher Education and the SOM's accreditation by the LCME, the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM: 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health (CEPH); 3) the American Psychological Association (APA) Committee on Accreditation; and, 4) the Accreditation Board for Engineering and Technology (ABET). Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 5) the American Association for the Accreditation of Laboratory Animal Care; and, 6) the Nuclear Regulatory Commission.

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## MILITARY UNIQUE CURRICULUM

***Introduction.*** **USU represents a total military medical educational environment and acculturation process. USU has a mission unlike any other of America's 125 medical schools. Medical education at USU combines clinical mastery with intensive, state-of-the-art simulation, operational and field training to produce the best prepared and most effective U.S. military medical forces in our history. USU graduates are equally prepared for the operating room or the situation room. USU's mandate to train uniformed medical personnel to serve the U.S. Armed Forces and U.S. Public Health Service worldwide and under all climatic and geographic conditions necessitated that a military unique curriculum be added to the standard medical school curriculum. The USU School of Medicine (SOM) provides 20 more weeks of education than the typical medical school. During this time students spend over 800 hours in military and medical readiness training or up to 15 times the hours that other medical corps officers receive. Military medicine requires a solid background in tropical medicine and hygiene, parasitology, the use of epidemiologic methods and preventive medicine. The SOM provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.**

**Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a uniformed health care provider's ability to properly support his/her military commander's responsibility for troop fitness. The ability to provide disease prevention and health promotion under austere conditions is also critical. USU provides the Military Health System (MHS) with career-oriented personnel who possess the knowledge, skills, and attitudes essential for effective deployment during Joint Service Operations in fulfillment of the USU motto: "Learning to Care for Those in Harm's Way."**

- **USU Board of Regents,** 2005 Report to the Secretary of Defense, *Introduction*, pages 1-2.

**In my last 6 months, here in Afghanistan, I have diagnosed and/or treated malaria, typhoid fever, polio, retinoblastoma, leptospirosis, leishmaniasis, rickets, kwashiorkor, beri-beri, extra pulmonary and pulmonary tuberculosis, a variety of intestinal parasites, frostbite, mumps and rheumatic fever. My education at USUHS prepared me to recognize and treat these diseases, many I had never seen in the United States, that are common in areas where we currently conduct military operations.**

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

**In terms of contributions provided during the conflict** (the war with Iraq)**, upwards of 100 of our physician graduates served with distinction in the war. Their efforts ranged from providing frontline trauma surgery for coalition forces to caring for sick and injured Iraqi**

**citizens and enemy prisoners of war... Additional physician and nurse alumni provided rear echelon support throughout the medical evacuation system, including the critical care air transport systems and Landstuhl Regional Medical Center as well as stateside Army and Navy hospitals. Some of their efforts have been recounted in national and local newspapers and by radio and television stations, including the Washington Post, New York Times, Baltimore Sun, Wall Street Journal, Stars & Stripes, Los Angeles Times, Charlotte Observer, USA Today, Miami Herald, National Public Radio, and ABC-TV.**

**Most of the forward surgical teams and shock-trauma platoons deployed to the theater of operations received just-in-time battlefield skills sustainment training programs, each run by a USU alumnus.**

**Our students receive an extra measure of combat casualty care training in their four years at the University, especially through our Department of Military and Emergency Medicine, the only such department in the Nation... This training was critical to the success of U.S. operations.**

- **Everett Alvarez, Jr., J.D., Chair, USU Board of Regents,** 2003 Annual Report to the Secretary of Defense, *Executive Summary*, June 30, 2003.

**The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Defense Subcommittee on Defense Health, April 30, 2003.

**Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military health care professionals to meet current and future challenges. Please accept my appreciation and pass on a hearty "Well Done!" to your colleagues and the students for their dedicated efforts in support of our men and women in uniform.**

- **General Richard B. Myers, Chairman of the Joint Chiefs of Staff,** Letter to USUHS, March 29, 2002.

**General Overview.** The School of Medicine is a fully accredited medical institution, which provides a year-round, four-year curriculum. This curriculum is 174 weeks in length, approximately 20 weeks longer than the average curriculum of medical schools in the United States. This expanded curriculum focuses on epidemiology, health promotion, disease prevention, tropical medicine, leadership, officership,

the management of combat trauma, and combat casualty field exercises. Woven throughout the students' entire course of study, these and other subjects focus directly on the unique requirements of career-oriented physician officers. The USU SOM military unique training includes **"approximately between 784 and 889 hours of initial military education and medical readiness training compared to that provided to the Health Professions Scholarship graduates whose training ranges from 50 to 132 hours, depending on the Service"** (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 41).

USU Represents a Total Military Medical Educational Environment and Acculturation Process.

**Throughout my 28 years of service in our U.S. Army, I have applied and refined the profession of military physician... When I entered USUHS, I understood that I would commit my career to the study of the art and science of applying my medical education, training and skills to the military and the application of my medical skills toward providing health care on the battlefield... In three wars and two peacekeeping operations, I have numerous stories where my training and joint medical understanding and contacts were pivotal to executing health care operations on the ground. But equally important has been my understanding and application of joint medical operations and the ability to call upon my medical school** (USUHS) **classmates within their operational medical roles to solve problems. I can recount the many ways and means in which I drew upon the education and experiences I received** (at USUHS), **but it is safe to say that these all were derived from a fundamental base of education and culture development toward placing enormous value on a profession that required my understanding and application of officership as well as my understanding and mastery of my medical and surgical skills.**

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence to USU, April 13, 2005.

**The Military Unique Curriculum of the USU SOM is what sets it apart from every other medical school in the United States. While the Department of Military and Emergency Medicine serves as the hub for this component of the curriculum, military medicine is integrated into the courses of virtually every academic department in the SOM... Military medicine is based on a paradigm of the life-cycle of our patient population, which often runs from birth, through active duty, to retirement and death. This life-long relationship results in an investment in fitness and health promotion greatly exceeding other health care models. Prevention of illness and injury, through interventions such as vaccinations, improved body armor, and lifestyle changes, is a principal focus.... having a cadre of physicians trained in triage and mass casualty management, as well as weapons of mass destruction, is invaluable.**

- **Colonel Charles Beadling, USAF, MC, CFS, USU SOM Class of 1984, Acting Chairman, Department of Military and Emergency Medicine,** Correspondence to USU, February 16, 2005.

**Among America's 126 medical schools, USU has a mission unlike any other. Medical education in other schools focuses on the individual down to the subcellular components. This purview is only a subset of the USU perspective. In support of the warfighter, USU must take a worldwide view to include preventive medicine and atypical medical care. Since U.S. forces are expected to be deployed in every geographic and climatic region in the world, USU prepares its students for any and all circumstances.**

- **USU Board of Regents,** *2003 Annual Report to the Secretary of Defense*, June 30, 2003, page 2.

The USU SOM provides the Military Health System (MHS) with career-oriented medical officers who possess the knowledge, skills, and attitudes essential for effective deployment during Joint Service operations. The SOM's principal focus is on military medicine, which involves the prevention of disease and injury; the management of combat trauma; health promotion; and, diagnosis and treatment by medical personnel who are integral to the military operations they support. This focus also involves syndromes and injuries that are either rare or unknown among non-military populations.

Military medicine requires a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. **The SOM, for example, provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.** Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a uniformed physician's ability to properly support his/her military commander's responsibility for troop fitness. Also critical to a military physician's focus is his or her ability to provide disease prevention and health promotion under austere conditions.

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**First-Year Curriculum.**

Background. Four SOM Departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, Medical History, and Psychiatry, share the major responsibility at USU for teaching the military unique course material; *material that is not found in the curriculum of any other medical school in the United States*. In addition to the usual first-year medical school courses, such as Anatomy, Physiology, Biochemistry and Human Behavior, students at the SOM have required courses in Military Studies, Military Medical History, Tropical Medicine (Diagnostic Parasitology and Medical Zoology), as well as Biostatistics and Epidemiology, all of which utilize military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the Uniformed Services. Students are focused on the delivery of preventive and treatment services in the *field* or in a deployed environment.

Overview of Military Studies. The Department of Military and Emergency Medicine is responsible for teaching the Military Studies Curriculum during the first and second years of medical school. ***Military Studies I*** is taken during the first year of medical school. It consists of an introduction to military medicine, combat medical skills and military applied Physiology. It also includes the history course taught by the Department of Medical History. ***Introduction to Military Medicine*** ensures that students begin their studies with a common understanding of how each Service conducts combat operations and provides medical support during joint operations. As the course title implies, it introduces students to military medicine through lectures and small group discussions. The content of the course includes the expectations that line officers have placed on the medical corps, the distribution and classification of combat casualties, the impact of disease and non-battle injuries on readiness, and the career patterns of the military medical officer. The remainder of this course deals with the echelon system and evolving modular concepts of battlefield health care and an introduction to the areas of chemical, biological, radiological, nuclear, and high explosive (CBRNE) warfare. By the end of the first (Fall) term of medical school, students have gained an understanding of the content, knowledge base, literature and vocabulary of military medicine and a framework for relating and integrating the content of their basic science courses with military medicine.

During the second instructional period (Winter) of the first year, the students learn the basic skills of pre-hospital care in a course entitled, ***Combat Medical Skills***. The course presents an abbreviated version of the *Combat Medic Course* with emphasis on patient assessment at the scene of injury. It includes an introduction to the patient history and physical examination skills later taught in the *Introduction to Clinical Methods Course* and is linked to the content of the fourth-year course in advanced trauma life support. Additional skills introduced are bandaging and splinting; airway, breathing and hemorrhage control methods; field triage and prioritization for transport; and, communicating relevant findings to the next level of care. Students put their skills to work in an emergency response mass casualty triage, treatment and evacuation exercise later in the course. The course also exposes students to non-commissioned officer (NCO) corpsmen and medics and civilian paramedic instructors, helping to prepare them for their future roles in supervising and providing sustainment training to these personnel when assigned to operational medical units. ***Military Applied Physiology*** is presented during the third instructional period (Spring) of the first year. This course parallels the traditional Physiology Course and also reinforces the concept, introduced during the Fall, that military medicine is a form of occupational/environmental medicine. The physiologic responses to stressors common to the military environment such as cold, heat, radiation, diving, altitude, and exercise are presented in the context of their impact upon readiness.

By the end of the first academic year, each student has completed course work and experiences considerably greater than those required for medical officers entering active duty from other accession sources. The first academic year provides 40 weeks of instruction, one week of operational medicine, and five weeks of military medical field studies.

Operation Kerkesner.

**Kerkesner focuses on introducing USUHS students to exactly the** (military field and preventive medicine) **skills that they need to survive in combat... Weapons training, map reading, basic leadership and NBC defense. I saw that medical officers needed these skills time and time again in Iraq.**

- **Lieutenant Colonel Kevin Riley, MS, USAF, CENTCOM Special Operations Command Surgeon for Operation Iraqi Freedom,** Correspondence to USU, September 15, 2003.

**I just returned from a *fantastic* morning at Quantico observing Operation Kerkesner. I had no idea that the training had reached such a high state of sophistication... Some of my observations included the following: how integrated and well thought out the sequence and content of the training was; how those students with prior military time helped the uninitiated ones so well; how professional and competent the Marine NCO cadre was. What a powerful lesson for those students to see how the NCO Corps truly is the backbone of the force; how impressed the two Thai Army officers and Japanese Naval officer were as they observed the training. USUHS no doubt is the global benchmark model; how the students praised this experience. Not one I spoke with had a negative thing to say.**

- **Colonel Frederick J. Erdtmann, MC, USA, Hospital Commander, Walter Reed Army Medical Center,** Letter to the USU President, June 25, 1999.

Between the first and second year, all students participate in the required five-week course, ***Military Medical Field Studies*** (MMFS). The MMFS Course begins with instruction in military field skills, which include: operating a radio; navigating the land in daylight and at night; using preventive medicine principles; and, protecting oneself against CBRNE attacks.

The knowledge from this block of instruction prepares the students to successfully complete a one-week leadership laboratory exercise to be held at Fort Indiantown Gap, Pennsylvania. This exercise, ***Operation Kerkesner*** (named after a former Marine faculty member of USU), challenges the students' ability to overcome field problems through their own initiative and team work.

***Operation Kerkesner*** focuses on small unit operations in a field environment. The exercise is conducted in two rotations; one half of the first-year class goes to the field at a time; the students are further broken down into platoons of approximately 20 personnel. This small group size ensures that each student has an opportunity to receive individual instruction and supervision during the training exercise. The

non-commissioned officers (NCOs) of USU and AFRRI are the primary instructors for this exercise. Not only does this ensure that the students receive quality training, it reinforces recognition of the skills and value of the NCO. The focus of the exercise is to train the students in critical military survival tasks and operational medicine, develop leadership skills, and instill a warrior ethos. Training tasks include small unit leadership, tactical casualty combat care, tactical evacuation, land navigation, hand-to-hand defense techniques, and starting intravenous infusions in a field setting. Evaluators from the Department of Military and Emergency Medicine and platoon advisors from USU live with the students and accompany them in all scenarios. Student leadership is rotated to place each student in a leadership position at the platoon level with all attendant responsibilities. Student leaders must know the medical threats (i.e., dehydration, insect-borne disease, sanitation, injury prevention, CBRNE avoidance and decontamination, and physical and psychological stress), which they may face and demonstrate how they would control these medical problems in their units.

This course initiates the student to the field skills and small unit leadership experience required for the successful completion of *Operation Bushmaster* during the *Military Contingency Medicine Course* in the fourth year. Beginning in 2005, ***Operation Kerkesner*** and *Operation Bushmaster* will occur simultaneously at Fort Indiantown Gap, Pennsylvania. This will allow the first-year students to participate in a Patient Context Exercise as part of *Operation Bushmaster*, introducing them to the stresses of being a patient on the battlefield; to enable them to view tactical evacuation systems in action; and, to see military medicine conducted in a resource-constrained environment. Their participation in *Operation Bushmaster* will also give the first-year students an idea of the challenges that they must be prepared to face during their fourth-year exercises.

***Operation Kerkesner*** has been visited by a variety of active and reserve United States military medical personnel and has served as a model for the Navy's Rapid Deployment Medical Force (RADMF) Training Program. Elements of the course have been used in Public Health Service Disaster Medical Assistance Team (DMAT) Training. Foreign military medical personnel have also attended the course to gain material to enhance their own training programs (i.e., the United Kingdom, France, Israel, Japan, Singapore, Thailand, and Mexico).

Non-Medical Operational Assignments. The field exercise is followed by the final portion of *Military Medical Field Studies*. Those students without prior service experience are required to spend three weeks with an operational unit in their parent Service. Students may be afloat on a Navy ship, at a Navy flight training center, with an Army or Marine Battalion, with noncommissioned officers (NCOs), or with other junior officers learning the military occupational environment and developing a *non-medical* perspective on military medicine. Coordinators at each site report on the students' performance to the Department of Military and Emergency Medicine. Students with prior service may elect to participate in research, work with a mentor, or attend a military qualification school such as: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, and Escape (SERE) School Training; Underwater Operations (SCUBA); or, training for the Expert Field Medical Badge (EFMB); about 30 percent of each class participates in a qualification exercise. At the completion of the operational clerkship, each student writes a paper relating the experience to his or her Service's core values.

Special Programs in Operational Medicine Offered by the Casualty Care Research Center. The Casualty Care Research Center (CCRC) is a division of the SOM Department of Military and Emergency Medicine. The CCRC, created in July of 1989, is staffed by military and civilian physicians and scientists. The center provides USU medical students and other medical personnel disciplined training and research

experiences in combat casualty care, medical counterterrorism, injury epidemiology, trauma management and other related areas. USU's medical students attend the CCRC programs either as an elective during their fourth year or as part of their summer experience between the first and second years of medical school.

In October of 2004, many of the programs previously developed by the CCRC were transferred to the Department of Homeland Security (DHS) Office of Protective Medicine. Through a collaborative agreement, a myriad of important educational opportunities remain available to medical students through the CCRC and the DHS Office of Protective Medicine.

Medical students have the opportunity to attend one or more of the following CCRC training opportunities:

1. ***Emergency Medical Technician-Tactical (EMT-T) Course.*** The EMT-T Course was developed to provide relevant training to medical providers who work within the law enforcement special operations community. Topics in the EMT-T Program include: clandestine drug laboratory raids; emergency medical care in barricade situations; care under fire; forensic science during patient care; medical operations, planning and medical intelligence; wounding effects of weapons and booby traps; special medical gear for tactical operations; personal protective gear; special needs for extended operations; preventive medicine; and, injury control;

2. ***Emergency Medical Technician - Tactical Advanced Course.*** The Tactical Advanced Course includes the following topics: advanced technology applications in remote assessment methodology; legal concepts and moot court; individual health care concepts; concepts in crisis intervention; sleep/wake cycle management; emerging issues in chemical restraint; operational dermatology; management of training injuries; nutrition and fitness for tactical teams; and, less lethal weapons systems;

3. ***Weapons of Mass Destruction (WMD) Training Program.*** The Center offers a variety of training programs in the area of WMD to include: Out-of-Hospital Response Training; and, a Health Care Facilities Course. Topics of instruction include: identifying potential chemical-biological-radiological-nuclear (CBRN) devices; threat recognition and evaluation; formulating a building response/evacuation plan; the role of quarantine and isolating exposed individuals; psychological effects of a WMD incident; and, principles of hasty decontamination; and,

4. ***Tactical First Responder.*** Originally developed for the Diplomatic Security Service of the Department of State, this 40-hour program addresses all of the elements of the first responder national curriculum, but in the context of a tactical medical provider who must operate in a hostile and austere out-of-hospital environment. This course includes both didactic and scenario-based, practical learning experiences.

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**Second-Year Curriculum.**

Extensive Hours of Preventive Medicine Training. During the second year, along with Pathology, Microbiology, Pharmacology, Ethics, Human Behavior, Introduction to Clinical Medicine and Physical Diagnosis, students have additional hours of preventive medicine, including an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and, health services administration. On October 3, 2001, the Dean, SOM, issued a revised policy directing that *all second-year medical students must certify as Basic Life Support (BLS) providers at the "C" (health care provider) level.* The certification is in effect for two years and is provided during the sophomore year to maintain certification through May of the senior year. Students must be certified prior to the beginning of their third-year clerkships. The Department of Military and Emergency Medicine schedules BLS certification sessions for the second-year students; however, students may elect to certify through officially approved off-campus courses under the auspices of the American Heart Association or the American Red Cross. These courses must be at the "C" level.

Military Studies. The second-year ***Course in Military Studies***, conducted by the Department of Military and Emergency Medicine, focuses on two general areas: the science base for the practice of military medicine (wound ballistics, the effects of conventional and unconventional weapons effects, protective equipment, and decontamination procedures); and, the command-and-staff functions of military medicine in Joint Commands (i.e., medical planning, medical logistics, medical evacuation systems, and blood programs).

The second academic year spans 35 weeks of instruction within the SOM. After final examinations, students prepare for the ***United States Medical Licensing Examination (USMLE) Step 1***, which is the first of three examinations in the process of becoming a licensed physician. The current second-year class will complete the computer-based testing (CBT) for the USMLE, Step 1, between May and June of 2005, prior to beginning the first rotation of their third year. The Office of Student Affairs reported that the USU first-time pass average for the Step 1 Board Examination, during 2004, was 93 percent.

Second-Year Medical Ethics Course. The second year, ***Medical Ethics Course: Ethical, Legal and Social Issues in Medicine*** was initiated during the Summer of 1977. The course, taken by all medical students, provides extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva Convention. A new issue posed this year was whether treatment of prisoners who had been terrorists should be any different from that of prisoners who had been former enemy soldiers fighting for countries that had signed the Geneva Convention. Military physicians who had served in Iraq and on the Navy hospital ship, *USS Comfort*, discussed their experiences and the ethical issues they confronted during this year's course. Other material stresses the resolution of hospital-based ethical problems in Federal institutions.

A wide range of speakers is annually provided during the course: **Gordon Livingston**, a local psychiatrist and West Point Graduate, shares lessons learned during the Vietnam Conflict; and, **Jon Spelman**, an actor, presents a dramatic performance of the play, *Frankenstein*, giving the students the opportunity

to learn how they can use the arts to increase their awareness of the nuances of human emotions, as in this case, of research participants. **Edmund Pellegrino**, an internationally known physician ethicist, discusses conflicts that arise for medical students and optional approaches to resolving them.

There are four major military issues that all USU students address: 1) Military Medical Triage. The students learn that the practice of military medical triage sometimes departs from traditional civilian medical procedures and that the top priority may be to further the military mission. The students discuss how the varying priorities may be necessary to save the most lives, both military and civilian; 2) Captured Enemy Service Persons. The USU students learn that if the captured enemy is ill or injured, he/she is to be regarded as a patient. There is no option for physicians or any service persons to mistreat prisoners or to treat them *less equally* for revenge or military gain; 3) Exploitation of Vulnerable Patients. In this session, the students learn that in medicine, physicians should never exploit vulnerable patients for military gain; and, 4) Self-Incriminating Information. In this final area, students are instructed that the two primary tasks of military physicians are to keep their patients healthy and to provide commanders with accurate information regarding the health of their patients and that these tasks take precedence over acting as surrogate investigators to help enforce the law.

Over 150 faculty from USU, NNMC, WRAMC, and other distantly located facilities led discussions on these and other issues with small groups of students. The final lecture, since 1999, has been given by **Patricia Heberer**, an historian at the Holocaust Museum. In this year's session, the students viewed a film actually shown to the German public by the Nazi Government during World War II to justify policies of euthanasia for selected patient groups such as those who had severe mental illness. The students learned that all physicians are susceptible to immoral behavior and that they must avoid the mistakes of the past.

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**Third-Year Curriculum.**

Overview. The third-year curriculum consists of clerkships in the principal specialties of medicine. Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, and troop dispensaries on active military bases) and the patient population, which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

As a part of their training and work during their clerkships, USU SOM third (and fourth-year students) provide hundreds of thousands of hours of patient care related services in the MHS hospitals during each calendar year. Such services include: examination of patients; providing post-operative care; organization and maintenance of the completion of the medical history and physical examinations of patients; assistance at surgery and the delivery of newborns; and, updating progress notes in patient records. These services, performed by USU medical students in a supervised setting, provide necessary and important support in the provision of quality medical care to the men, women, and children receiving treatment throughout the MHS.

All SOM departments are providing a clinical experience within the ambulatory setting. The ambulatory services of all departments have grown significantly within the past seven years. ***The Department of Medicine has taken the lead and devoted extensive resources to the planning, development, and implementation of a comprehensive ambulatory teaching experience. The department's program and its faculty have become nationally recognized for accomplishments in this area; and, numerous publications in peer-reviewed journals and presentations have resulted***.

Clerkships Represent the Entire Spectrum of the MHS. USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the Military Health System (MHS). The third-year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third-year rotations: Family Practice (six weeks); Obstetrics/Gynecology (six weeks); Pediatrics (six weeks); Psychiatry (six weeks); Internal Medicine (two six-week sessions); and, Surgery (two six-week sessions). Five of the USU SOM academic departments - Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, and Psychiatry - use the Walter Reed Army Medical Center and the National Naval Medical Center as major clinical instructional sites.

The following teaching hospitals have affiliation agreements with the USU SOM: 1) **United States Army - (7)** Walter Reed Army Medical Center, Washington, D.C.; Brooke Army Medical Center, San Antonio, Texas; Tripler Army Medical Center, Hawaii; Madigan Army Medical Center, Tacoma, Washington; Eisenhower Army Medical Center, Fort Gordon, Georgia; William Beaumont Army Medical Center, El Paso, Texas; Womack Army Medical Center, Fort Bragg, North Carolina; 2) **United States Navy - (3)** National Naval Medical Center, Bethesda, Maryland; Naval Hospital, Portsmouth, Virginia; Naval Hospital, San Diego, California; and, 3) **United States Air Force - (6)** Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; Wilford Hall Medical Center, Lackland, Texas; USAF Medical Center, Wright Patterson Air Force Base, Ohio; USAF Medical Center, Keesler Air Force Base; David Grant Medical Center, Travis Air Force Base, California; and, USAF 3rd Medical Group Regional Hospital, Elsmendorf, Alaska. In addition, USU students rotate through the following Medical Centers or Community Hospitals for at least one of their required specialty clerkships: 1) **United States Army - (3)** DeWitt Army Community Hospital, Fort Belvoir, Virginia; Martin Army Community Hospital, Fort

Benning, Georgia; Darnall Army Community Hospital, Fort Hood, Texas; 2) **United States Navy - (2)** Naval Hospital, Jacksonville, Florida; Naval Hospital, Pensacola, Florida; and, 3) **United States Air Force - (1)** USAF 96th Medical Group Hospital, Eglin Air Force Base, Florida.

The SOM Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are put into place. The ADA visits the major Military Medical Centers on a regular basis; reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; and, ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and the University. This process ensures that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, which has resulted in overall improved relationships between the SOM and its numerous clinical sites. During 2004, the ADA conducted site visits to: the Dwight D. Eisenhower Army Medical Center (DDEAMC), Fort Gordon, Georgia, and the 88th Medical Group, U.S. Air Force Medical Center, Wright-Patterson Air Force Base, Ohio. Affiliation agreements were updated and concluded with both institutions. The Office of Clinical Affairs also staffed and concluded updated affiliation agreements with the National Naval Medical Center, Bethesda, Maryland; the Naval Medical Center, Portsmouth, Virginia; the Madigan Army Medical Center, Tacoma, Washington; the William Beaumont Army Medical Center, El Paso, Texas; and, the Tripler Army Medical Center, Hawaii; all of which were visited during 2003. Site visits planned for 2005 include the 89th Medical Group, the Malcolm Grow Air Force Medical Center, Andrews Air Force Base, Maryland; the Walter Reed Army Medical Center, Washington, D.C.; and, the Womack Army Medical Center, Fort Bragg, North Carolina.

The Department of Obstetrics and Gynecology Implements the Use of Simulation Laboratories. The Department of Obstetrics and Gynecology implemented an expanded skills curriculum for residents and medical students, which included a life-sized birth simulator. The simulator is located in a dedicated, mock-up delivery room in the Department's Education Unit, which is located in Building 1 at the National Naval Medical Center, in Bethesda, Maryland. **Colonel Andrew Satin, USAF, MC, Professor and Chair of Obstetrics and Gynecology, USU SOM Class of 1986,** designed a curriculum employing the use of the birth simulator in the instruction of medical students during their core third-year clerkship and residents through their four years of training. Divided into small groups, the medical students each have an opportunity, under direct faculty supervision, to conduct a virtual, life-like *normal birth* so that they can gain the knowledge, skills, and confidence required of them during actual clinical care labor and delivery settings. The medical students have been universally enthusiastic in their appreciation of this novel instructional opportunity. The resident curriculum has been designed to instruct more advanced residents in the principles of obstetric forceps applications and vacuum-assisted delivery, breech delivery, and shoulder dystocia management. **Colonel Ernest Lockrow, MC, USA,** and **Major Amy Asato, MC, USA,** developed an extensive gynecologic simulation program for medical students and residents. Under their leadership, trainees can now perform simulated gynecologic examinations, hysteroscopic, laparoscopic, and pelvic surgery on simulators to introduce and improve their techniques. Measurable increases in knowledge, skills, confidence, and overall proficiency of the residents have resulted; and, the program has been presented at several national forums. The American Board of Obstetrics and Gynecology, among other organizations, has taken considerable interest in the further evolution of these instructional programs. The Department faculty was selected to present a series of workshops on this novel program to the Association of Professors of Gynecology and Obstetrics. Doctor Satin was also asked to address the Council of Resident Education in Obstetrics and Gynecology and the Association of Professors in Gynecology and Obstetrics in their plenary session at their annual international meeting.

The Department of Obstetrics and Gynecology Successfully Utilizes Standardized Patients to Assure Mastery of Required Knowledge, Skills, and Professional Behaviors. Educators in Obstetrics and Gynecology and accreditation bodies have been concerned that a medical student could complete a required core clinical clerkship without the assurance of the mastery of essential clinical skills or the demonstration of the essential components of professionalism. The SOM Department of Obstetrics and Gynecology initiated a program of assessment utilizing standardized patients (trained actor-patients) in an Objective Structured Clinical Exam (OSCE) format with one-on-one faculty supervision at the end of each core six-week clinical clerkship. These sessions are conducted at USU's Medical Simulation Center for clerkships in the National Capital Area; and, sessions are provided in the Obstetrics and Gynecology Clinics located at the integrated Wilford Hall USAF Medical Center in Lackland, Texas; the Brooke Army Medical Center in San Antonio, Texas; and, at the Tripler Army Medical Center in Hawaii. As other clinical programs have done, the Department can now assure that the students have been observed correctly performing essential techniques. The following procedures are performed utilizing standardized patients during the OSCE: the clinical breast examination; the speculum pelvic examination; the bimanual pelvic examination; an interview of the adolescent gynecologic patient; and, an interview of the menopausal patient. Another innovation is the provision of direct, on-the-spot feedback to the medical students from the standardized patients and the faculty supervisors both at the conclusion of each of the essential techniques, or procedures, listed above, and following the final examination sessions. The standardized patients and faculty reinforce the skills and also provide guidance for improvement. Feedback from the students has been extremely positive; they understand the importance of being able to exhibit the required skills and behaviors; and, they particularly appreciate the immediate guidance and the opportunity to improve their performance of these essential skills. As a consequence, this clerkship experience leaves a permanent impression on the students, which eventually benefits their future patients during subsequent clinical encounters.

An Innovative Clinical Clerkship Management Tool Utilizing Palm-Type, Hand-Held Computer Devices. The Department of Obstetrics and Gynecology has also led the development and implementation of an innovative clinical clerkship management tool utilizing palm-type, hand-held computer devices for medical student performance evaluations. Beginning in 2000, the residents in the USU, NNMC, and WRAMC-sponsored Uniformed Services Residency in Obstetrics and Gynecology Program have utilized a hand-held device operating system application, which was developed by faculty in the USU Department to establish a cumulative data base encompassing the residents' individual patient care management experiences. On a weekly basis, each resident downloads his or her data to the main department computer through a *hot sync* function. This allows the program director to have timely, on-going access to the experiences of all of the residents. During 2004, trainees were enabled to report their experiences at remote sites by utilizing a web-based program. The positive impact of this program was published in the peer-reviewed premier journal, Obstetrics and Gynecology, and was showcased in a special session at the Annual Meeting of the Council on Resident Education in Obstetrics and Gynecology in March of 2001. Since the residents are the primary teaching interface with the USU medical students, a new program has been developed in the SOM Department so that the residents can enter their assessments of the performance of the USU medical students who are rotating on their respective services. ***When the residents download their own patient care experiences on a weekly basis, their evaluations of the USU medical students are automatically downloaded as well. The Clinical Clerkship Director then has ready access to the progress of all of the medical students in a format that is automatically updated each week.*** Data for all students in the Department of Obstetrics and Gynecology is downloaded weekly through a secure Internet site so that the Clerkship Coordinator can monitor the progress of all students at all sites. ***This process helped USU to meet the LCME requirements for uniform experience and assessment for all USU medical students across all sites***.

Pediatric Clinical Rotation - Experiences with Exceptional Family Members. Several years ago, the Pediatric Clinical Rotation initiated home visits to families with children with special needs. This program has grown to include a set of educational experiences integrated across the four years of medical school. In the first year, medical students have an opportunity, coordinated with the Human Context in Medicine Course, to visit families or adult patients with special needs. In the second year, the Bioethics Course opens with a three-hour session that includes a lecture, film, and small-group discussions with parents whose children have been critically ill during the first year or two of their lives. In addition to the Pediatric Home Visit in the third year, the Pediatric Clinical Rotation includes two sessions in which faculty members and parents collaboratively offer insights about developmental issues of childhood and provide practice and feedback about pediatric medical interviews. The Family Medicine Clinical Rotation now teaches about advocating for patients and families through standardized patient experiences, a three-and-a-half hour session taught collaboratively with adults with chronic medical conditions, and a home visit that focuses on medical and community resources. A Pediatric Research Elective in the fourth year provides an opportunity for students to: design and initiate research that involves parents and patients for providing insights about health care experiences; plan research that incorporates patients and families; and, respond to surveys and interviews.

With continued funding from the Health Resources Services Administration, Department of Health and Human Services, **Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics, Secondary Appointments in the Departments of Medicine and Family Medicine,** and **Colonel Virginia Randall, MC, USA (Ret.), Associate Professor, USU SOM Department of Pediatrics, Secondary Appointment in the Department of Family Medicine,** furthered the involvement of patients and family members as advisors and co-teachers in medical education. These advisors have chronic medical conditions and/or disabilities, or have a child or other family member with a special need. They share their experiences with medical students during all four years of the curriculum. A new activity developed with input from these advisors presents pediatric applications of evidence-based medicine. Doctor Hanson convened focus groups of the advisors to develop descriptions of physicians' professionalism from the perspective of patients and parents, with plans to develop tools to teach and evaluate professionalism among medical students.

Pediatric Cardiology Module - Cardiac Auscultation at the Simulation Center. Beginning in 2000, an innovative case-based, interactive scenario in pediatric cardiology was introduced to the third-year medical student pediatric clerkship through the advanced technologies of the National Capital Area Medical Simulation Center. This teaching module is an interactive session between the instructor and medical students with discussions on the events of the cardiac cycle and a demonstration of their relationship to heart sounds and murmurs in the normal child as compared to the child with congenital heart disease. The instructor's presentation is supported by slide presentations and the use of computer software. The demonstration of heart sounds and murmurs is based on a CD-ROM, which contains audio files of actual pediatric cardiac sounds as well as other visual resources and are available to each student at his/her individual work station.

The teaching objective is for the student to recognize the normal clinical findings in the cardiovascular examination of the child and to differentiate between physiologic and pathologic sounds and murmurs. The teaching module is expected to complement the clinical experience during the clerkship and to help develop physical diagnostic skills. This educational experience has been presented at the National Meeting of the Council on Medical Student Education in Pediatrics. To date, over 222 medical students have received this educational intervention as part of their third-year pediatric clerkship. The students' evaluations have been very positive as expressed in their post-clerkship critiques.

The Department of Pediatrics Fosters an Initiative to Bring Teaching Across Multiple Sites - Using a Web-Based Program. Starting in the Fall of 2004, the Pediatric Education Section of the Department of Pediatrics developed an innovative way to teach Anticipatory Guidance to third-year medical students across multiple learning sites. This project was showcased in a poster presentation at the Council for Medical Student Education in Pediatrics (COMSEP) Annual Meeting held in April of 2005, at Greensboro, North Carolina. After selecting Anticipatory Guidance as a priority topic from the COMSEP Evaluation Task Force list of core competencies for pediatric clerkships, **Major Michael Pelzner, MC, USA, Assistant Professor, USU SOM Department of Pediatrics,** in conjunction with **Lieutenant Colonel W. Scott Jones, USAF, MC, Assistant Professor, USU SOM Department of Pediatrics,** and **Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics,** designed a teaching module within the Blackboard (Bb) Learning System Academic Suite to deliver standardized content. This module explains a strategy for delivering anticipatory guidance, key topics for toddlers and preschoolers, and tips for building rapport during wellness encounters. After reading through a PowerPoint presentation, exploring web-based content from Bright Futures at Georgetown University (*www.brightfutures.org*), and completing an on-line case from the Computer-Assisted Learning Project in Pediatrics (*www.clippcases.org*), students post comments and questions within a Blackboard forum. A faculty preceptor posts initial questions, then, along with several parent teaching assistants, monitors and contributes to the on-line discussion and answers students' queries on a daily basis over a designated timeframe. The program has been well received by students and faculty as a beneficial resource for asynchronous learning. Using the Clinical Weblog to track the medical students' patient encounters across the seven individual teaching sites, the faculty will be able to identify gaps in the standardized curriculum and use similar modules to fill them. This will help to ensure that the clerkship meets Liaison Council on Medical Education (LCME) requirements for standardized experiences and assessments for all USU medical students across all seven of the geographically separated teaching sites.

The Department of Pediatrics Uses the Blackboard Learning System Academic Suite to Host a High-Stakes Portion of the Third-Year Clerkship. Beginning with the 2005-2006 Academic Year, students in the Pediatric clerkship now have to complete three on-line cases from the Computer-Assisted Learning Project in Pediatrics (*www.clippcases.org*), and then take a high-stakes examination, worth 5 percent of their clerkship grade. CLIPP represents a collaborative effort between Dartmouth University and the Council on Medical Student Education in Pediatrics (COMSEP) to develop a cadre of on-line simulated patient learning experiences that cover the COMSEP curriculum used by over 80 percent of the medical schools in the United States. *By using CLIPP cases, the Department of Pediatrics continues to promote the standardization of the clerkship curriculum across all seven of the department's geographically separated sites*.

The Pediatric Clinical Rotation - Students' Clinical Observation of the Preceptor (SCOOP). Several years ago, the Pediatric Education Section developed a novel approach for teaching communication, interpersonal skills, and professionalism in a clinical context. With written cues, which focus their observations, students observe their preceptors, who intentionally model desired behaviors during clinical encounters. Students and preceptors discuss the observed patient-physician interaction during post-encounter sessions. Most medical students have rated the SCOOP process as highly beneficial; and, they also have reported professional behaviors gained through the process. **Lieutenant Colonel Woodson Scott Jones, USAF, MC, Assistant Professor**; **Janice L. Hanson, Ph.D., Research Assistant**; and, **Colonel Jeffrey L. Longacre, MC, USA, Associate Professor,** all members of the Department of Pediatrics, published their description of this unique approach in Teaching and Learning in Medicine, during 2004. The Education Section has given multiple invited workshop presentations on the SCOOP process at national meetings. The

SCOOP process has been adopted by other medical schools for teaching their medical students, expanded to resident education by residency program directors, and lauded in the national publication of the Council on Medical Student Education in Pediatrics.

Patient Simulation Laboratory - A Collaborative Effort.

***Invited Presentations.***

- **2004 American TeleMedicine Association** and the **2005 International Meeting on Medical Simulation, *Distant Regional Anesthesia Training*,** excerpts from the presentations:

  **During 2003-4, the USU Patient Simulation Laboratory (PSL), along with researchers from the Walter Reed Army Medical Center and USU, validated the concept of *utilizing the distant education network* for teaching the hands-on-skills required to insert regional block needles for pain relief following severe extremity trauma. Traditionally, the mainstay of post-surgical pain management for severe extremity trauma is systemic and long-term administration of powerful analgesics. However, any such systemic treatment includes effects on many organ systems distant from the site of trauma. Two techniques that offer an alternative treatment are long-acting peripheral nerve blocks (PNB) and out-patient continuous peripheral nerve blocks (CPNB). Benefits of PNB include superior pain control, improved patient satisfaction, decreased stress response to surgery, reduced operative and post-operative blood loss, reduced post-operative nausea and vomiting, and reduced costs. CPNP can extend these benefits well into a patient's recovery, outside of the hospital, with little or no systemic medication. This anesthetic technique is currently only utilized to its full potential at a few specialized hospitals. Few anesthesiologists receive adequate training in these techniques. This study, investigated advanced video telecommunications technology combined with new brachial plexus simulator technology to allow regional anesthesia experts to effectively train students in block techniques using distance learning. *This effort addressed the question whether students, using a simulator at a site removed from the instructor, can receive effective guidance via advanced video telecommunications technology. An increase in scores between pre- and post-simulation training demonstrates that the objective information had been successfully conveyed to the students over the distant education network*.**

A collaborative project between the National Naval Medical Center's Department of Anesthesiology and two USU SOM Departments Anesthesiology (ANE) and Anatomy, Physiology, and Genetics (APG) led to the development, in 1997, of a fully interactive medical training laboratory at USU: the Patient Simulation Laboratory (PSL). As mannequin-based simulation was new not only to USU, but also quite rare, in 1997, throughout the world of medical education, almost every program offered by the USU PSL was developed and implemented by the USU PSL staff. The PSL has been in daily use since its first course offering. This instructional facility supports training in combat casualty care, anesthesia, critical care, trauma, and emergency medicine. Students gain experience in recognizing problems, developing decision-making skills, and refining techniques and procedures. ***During 2004, the PSL provided over 600 hours of University-wide support for course offerings***.

The University has access to a total of 12 mannequins that span the range of ages from newborn to adult, both male and female (four at the USU Military Medical Simulation Center (SIMCEN) located at Forest Glen; two at the Naval Medical Education Training Command located in Building 1, at the National Naval Medical Center in Bethesda, Maryland; and, six mannequins at the PSL). There are scores of *customizable events* ranging from anaphylaxis to ventricular fibrillation that can be assigned to the simulated patients. The *mannequin patient* presents a wide range of responses to the following computer-controlled scenarios: lung ventilation visibly detectable by chest movement; eye lid open/closure; pupil dilation/contraction; palpable pulses; arm motion; thumb twitch; tongue and airway swelling; and, urination. In addition, the *mannequin patient* responds to the following student implemented actions: drug and gas administration; chest tube placement; needle thoracentesis; pericardiocentesis; and, cardiac pulmonary resuscitation. Every kind of signal that can be captured from a *real* patient can be displayed and analyzed on the Clinical Monitor. Patient Simulators typically have over two dozen predefined *patients*, each with unique underlying characteristics and cardiovascular, pulmonary, and metabolic attributes. These patient profiles are modified and new *patients* are constructed to match the teaching objective. The patient simulator can present a wide variety of medical problems and altered physiological states as well as difficult airway management and equipment set-up and/or malfunction. ***In addition, the simulators present scenarios applicable to combat casualty care, anesthesia, critical care, trauma, and emergency medicine***.

The drug models include intravenous and inhaled anesthetics, neuromuscular blockers, cardiovascular agents, and a wide range of infusion pharmaceuticals, which affect the simulators as they would human patients. The automated drug recognition system provides for realistic drug administration; each syringe is equipped with a unique computer chip that represents a specific drug. Thus, the instructor can: select the type of a case and adjust the speed and severity to match the ability level of the student; review and/or repeat clinical situations until a desired level of performance is accomplished (a lesson can be *paused* to provide the instructor the opportunity to give the student feedback); evaluate student clinical decision-making judgments; schedule training at convenient times; and, use the simulator as a research tool for training or evaluation methodologies.

During 2004, the patient simulators, located in the USU SOM Department of Anesthesiology, were used to train three primary groups: medical students; graduate nursing students; and, anesthesia residents. In addition, training was also provided to the following TriService, post-graduate military medical readiness groups: the Army Medical Center and School from the Walter Reed Army Medical Center; the Air Force Critical Care Air Transport Teams from the Malcolm Grow Medical Center; and, USS COMFORT clinical staff from the National Naval Medical Center.

The PSL has completed its seventh year of teaching 167 first-year SOM students a simulated cardiovascular reflex scenario as part of their Physiology Course. The simulator presents normal human physiologic values within a typical clinical setting, demonstrating the basic interactions of heart rate, blood pressure, cardiac output, stroke volume, and circulatory resistance; each year, the SOM students have expressed strong enthusiasm for this simulation presentation. The simulated patient definitely adds a clinical context to some of the physiological and pharmacological principles presented to both the medical and nursing students. In addition to these hands-on small group (eight students) simulations, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples during their Pharmacology lectures. Thus, the PSL brings the hospital to the students through a newly installed Advanced Distance Education Network (ADEN), designed by the PSL staff.

During their ***third-year anesthesia rotation***, SOM medical students are instructed in the basic fundamentals of anesthesia and the role of the anesthesiologist in surgery. They learn to connect a patient to

external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. For the first time, USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses, while actually performing the procedures and administering anesthesia on the patient simulator, without putting a patient, or themselves, at risk.

During 2001, 2002 and 2003, the USU PSL team received the *First Place Research Award* for their presentations at the Society for Technology in Anesthesia International Meeting on Medical Simulation. The PSL study shows a remarkable reduction in error detection time, when doctors view clinical monitor data via a prototype Head Mounted Display. This concept of providing immediately accessible critical vital sign data to clinicians via a Head Mounted Display is the basis of a patent application by the PSL team; PSL's winning presentation showed acceptance by surgeons to wearing a Head Mounted Display in the operating room. **During 2004, uniformed non-pediatricians deployed to combat zones received pediatric-specific refresher training through a DVD entitled, *Hostile Environments Life-Saving Pediatrics (HELP)*, which was created and produced within the PSL.** On-going training is also provided to nurses from the Walter Reed Army Medical Center in the *ICU Certificate Program*, where the PSL simulators present advanced patient care scenarios that include extensive equipment use and critical situation team training. And, Uniformed Anesthesia Residents from the Walter Reed Army Medical Center, the National Naval Medical Center, and the Naval Medical Center at Portsmouth receive *Introduction to Anesthesia in the OR* within their first week and then monthly-provided Anesthesia Crises Resource Management Team Training Sessions throughout the year.

An Innovative Introduction to the Surgical Clerkship. The third-year surgical clerkship is preceded by a three-day introduction to clinical models and operative procedures utilizing the National Capital Medical Simulation Center (SIMCEN) and the animal surgical facilities in the USU Department of Laboratory Medicine. This innovative and comprehensive approach, which occurs with third-year SOM students every six weeks, familiarizes the students with patient interactions associated with the presentation of common surgical illnesses as well as introducing various surgical techniques, priorities, equipment and procedures. The advanced technologies of the SIMCEN employ live patient models well versed in specific disease histories and symptoms. Disease scenarios include common problems such as pancreatitis, appendicitis, ectopic pregnancy, and gallbladder disease. Students perform comprehensive, focused histories and physicals on two to three *patients* under real-time observation by a faculty-teaching surgeon. The encounter is also taped for interactive student-teacher reviews during small group discussions of techniques and performance. In addition to the patient encounters, separate laboratories are held to teach and perform knot tying, endotracheal intubation and ultrasound fast examination techniques on mannequins. A human patient simulator is used to teach acute trauma care, utilizing various scenarios creating positive and negative outcomes to specific student treatment choices. There is also a virtual reality laboratory for the performance of technical skills including suturing and cricothyroidotomy. The unique experience offered by the two days in the live animal laboratory introduces students to actual operative procedures on an anesthetized animal under sterile conditions. The instrumentation, scrub procedures, apparel and routine are true replicas of actual clinical hospital settings. Students are assigned in groups of three or four to a certified teaching surgeon for the entire two days. Abdominal procedures including appendectomy, splenectomy, bowel resection and cholecystectomy are carried out with each student serving as surgeon, scrub technician, and assistant. The thoracic phase is carried out including a pneumonectomy, pericardial window, aortotomy, and chest tube placement. This intense three-day session prepares the student anatomically, physiologically and procedurally for the clinical rotation. The clinical rotations include the standard third-year clerkship in general surgery and surgical specialties. Small group mentoring preceptorships are held weekly as well as Distinguished Professor Lectureships, which are held bi-monthly.

Simulation Center Technologies Utilized During the Surgery Rotation. The advanced technologies of the National Capital Medical Simulation Center are being used in simultaneous fashion every twelve weeks to introduce the third-year medical students to their surgery rotations. The students are provided both an introductory discussion and a lecture regarding an abdominal surgery laboratory to be held the following day. The patient actors are used to provide an hour-long, three-patient opportunity to elicit, from the medical students, a medical history; and, the patient actors enable the medical students to perform a focused physical examination for a variety of acute abdominal diseases (i.e., appendicitis, pancreatitis, gallbladder disease, ectopic pregnancy, and others). These encounters are videotaped and the tapes are reviewed with the teaching surgeon during the subsequent hour. A suturing and knot-tying laboratory is held in the computer laboratory using both web-based and senior surgeon instruction. Plastic mechanical models (Laerdal/MPL) are used to teach such skills as endotracheal intubation, chest tube insertion, and surgical airway. The human patient simulator (MEDSIM) is used to teach the best approach to simple clinical problems such as hypotension or hypoxemia. The virtual reality laboratory experience includes starting an IV (HT Medical), creating an anastomosis (BDI), and performing bronchoscopy (HT Medical). Two additional simulators are used to teach emergency trauma procedures: pericardiocentesis and diagnostic peritoneal lavage. These last two trauma skills simulator technologies were developed at the National Capital Area Medical Simulation Center. Through the use of this multi-modality facility, the experience of medical students can be enhanced so that the first time some of the above-described problems or procedures are encountered, it will not be with a live patient, but rather with the most appropriate simulator. Approaches, such as those provided by the advanced technologies of the Simulation Center, are expected to minimize the possibility of medical errors.

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**Fourth-Year Curriculum.**

**We're not going to go off fighting the enemy, but anywhere the troops go, we're going to go, too," said Army 2nd Lt. Tom Dowd, a graduate of the U.S. Military Academy now preparing for a job in orthopedics at Brooke Army Medical Center. "Here, we're learning our roles so when we're out there (in combat), we're better able to come through."**

**Air Force 2nd Lt. Valerie O'Brien said Operation Bushmaster, and her entire course of studies at the Uniformed Services University, is preparing her for the challenges she will face practicing medicine in a joint environment. "This allows us to be more familiar with the assets the other services have and what they do," she said. "It's exposure we just wouldn't be able to get in a different environment."**

**After completing their studies at the Uniformed Services University, graduates accept a seven-year military service obligation. "But the type of person you have here doesn't think of it as an obligation," said Dowd. "This is what we want to do. Our greatest aspiration is to provide care to the servicemembers fighting the global war on terror."**

**"This is our chance to serve that population that gives so much for our country," agreed O'Brien, a former enlisted soldier whose father also retired from the Army.**

**"There's a real sense of pride here," she said. "We're here because we believe in what we're doing, and that's how we view our training and our job."**

- **Donna Miles, American Forces Press Service,** *Future Military Doctors Hone Field Medicine Skills*, Defense News, Camp Bullis, Texas, February 17, 2005.

**Yours is the only medical school in America which trains physicians to be ready for duty on the bottom of the ocean or on the surface of the Moon, and any place in between...As students, you went through one of the most rigorous programs in the country... You prepared yourself to treat patients anywhere in the world, under any circumstances.**

- **President Ronald Reagan**, Commencement Address, SOM Class of 1987.

Overview. The fourth academic year begins with a one-week ***Military Preventive Medicine Course***. Early in the fourth year, approximately 167 students also take the USMLE Step 2. The 167 fourth-year students have ten four-week blocks for 1,650 rotations. Students must complete an eight week subinternship as well as the following four-week clerkships: Military Contingency Medicine; Military Emergency Medicine; and, Neurology. The senior year concludes with a one-week ***Transition to Residency Course***.

Military Medicine. The Department of Military and Emergency Medicine conducts two courses in the senior year (***MCM*** and ***MEM***) that are required for graduation from the SOM. The ***Military Contingency Medicine (MCM) Course*** is one month long and focuses on medicine in a deployed environment and in response to a terrorist attack. The first three weeks of the course are currently devoted to reviewing and expanding basic concepts and manual skills learned in the first two years of Military Studies. While first-year medical students are taught first aid at the medic level in the *Combat Medical Skills Course*, the ***Advanced Trauma Life Support (ATLS) Course*** is taught at the physician level to the fourth-year students. The USU SOM is one of only three medical schools in the United States that requires ATLS for all students. Additional topics in the first three weeks include the management of combat trauma, chemical-biological-radiological (CBR) exposure, environmental injuries, and combat stress. Special sections focus on triage, women's health issues, and working with non-governmental organizations in disaster relief or humanitarian assistance missions. Integration with national strategic goals, operational missions, and tactical objectives is emphasized in all aspects of the course. Incorporated into the MCM curriculum is ***Introduction to Emergency Medicine (EM)***; this course teaches and gives students practice in the problem-solving techniques used by EM physicians. It prepares the SOM students to excel in a four-week Emergency Medicine clerkship entitled ***Military Emergency Medicine (MEM)*** - described below). The final week of MCM is dedicated to ***Operation Bushmaster*** where the lessons learned can be applied in multiple simulated situations during a field training exercise.

Operation Bushmaster.

**A fictitious Middle Eastern country, Pandakar, was facing internal unrest and taking casualties. Fourth-year medical students at the Uniformed Services University of the Health Sciences were called in to treat the patients. Operation Bushmaster, a 72-hour exercise designed to expose future military doctors to the rigors of field medicine in a combat environment, was under way here. As they treated "patients" - actually students at nearby Fort Sam Houston - the medical students from the Army, Navy, and Air Force applied the clinical training they received... in Bethesda, Md., as well as the tactical skills they would need to survive on the battlefield. "They have to defend themselves while they take care of the casualties," said Army Major Steve Currier, director for military contingency medicine at the Uniformed Services University. That requires skills not taught in traditional medical schools: land navigation, nuclear-biological-chemical decontamination and weapons skills, among them, as well as the ability to live and operate in the field. Although field skills are an integral part of Operation Bushmaster, Currier stressed that it's a practical exercise in tactical combat casualty care, not in infantry tactics. "We're teaching students to care for patients from the point of injury to the first surgical capability," he said. Increased emphasis on treating patients as quickly and far forward as possible presents challenges traditional medical students aren't likely to encounter, from treating patients while under fire to working with far less equipment than they'd find in fixed medical facilities. "The battlefield is not the same as home," Currier said. "Resources are limited, evacuation times are prolonged, and there are specific threats. It's a challenging environment."**

- **Donna Miles, American Forces Press Service,** *Future Military Doctors Hone Field Medicine Skills*, Defense News, Camp Bullis, Texas, February 17, 2005.

The field training exercise, ***Operation Bushmaster***, uses the constructs of two United States Army Battalion Aid Stations, one United States Marine Corps Battalion Aid Station, and, since 2003, an Air Force Expeditionary Medical Support System (EMEDS) to allow students to practice skills learned in the *Military Contingency Medicine Course* and throughout the *military* and *traditional* SOM curriculum. These treatment facilities are designed to represent first- and second-echelon levels of care within the forward battlefield environment. Real-world and notional modular teams have been integrated into the scenarios to reflect current medical doctrine and deployment practices for all Services. Each of the Services provides equipment and medical personnel to provide students experience with front-line medical evacuation procedures and platforms. ***The scenario reflects a Joint Task Force (JTF) deployment involving all four Services and incorporates updated policies established by the Secretary of Defense.*** In the past, the Bushmaster scenario was set in Bosnia; currently, it is based in the Middle East. If another area of the world becomes significant, USU instructors will change the cultural concerns and the diseases to match the designated area.

Students are placed in a resource-restricted environment and are forced to coordinate with theater assets and their *sister* Services in order to accomplish their missions and deliver optimal patient care. The students practice land navigation, radio communication and other field training, triage and combat casualty care, to include site selection and the establishment of their respective medical element. ***Medical and nursing students work together as a team to provide field medical care***.

Drawing on their classroom lectures, SOM students are encouraged to develop novel solutions to many operational scenarios and problems. They also are forced to learn and practice the different evacuation requirements and procedures that each Service utilizes in the battlefield environment. ***This exposure allows the students to quickly integrate themselves into a future joint combat environment.*** Students occupy at least three leadership and medical evaluation positions throughout the field operation. They are evaluated on the following: medical proficiency while handling dozens of simulated casualties; leadership skills under demanding and stressful conditions; mission accomplishment and focus; and, teamwork. Drawing on all that the students have learned while at USU, Operation Bushmaster is viewed as the capstone exercise of their military medical education, allowing them to hone their skills in a simulated combat environment.

***Previously conducted three times each at Camp Bullis in San Antonio, Texas, beginning in July of 2005, the exercise will be conducted once a year at Fort Indiantown Gap, a National Guard base in western Pennsylvania. The didactics will continue to be conducted on-site at USU; Operation Bushmaster will occur simultaneously with Operation Kerkesner.*** The new model will train the entire fourth-year medical school class as well as graduate nursing students and foreign medical students from the United Kingdom, France, Japan and Mexico. The exercise will run much as it did in Texas, with the exception of an increase in platoon size and an increased number of leadership positions. The new iteration will also use first-year medical students as simulated casualties. As such, they will receive training on role playing as well as disease, non-battle injuries and combat trauma wounds prior to the exercise. They will provide feedback to the faculty on the treatment rendered and act as safety officers. This should prove to be a valuable experience as the first-year students will experience what it feels like to be a patient on the battlefield. The first-year students will also spend time with physicians in the moulage tent who will answer questions about disease processes and trauma care.

In USU Quarterly, **Major Troy Johnson, MC, USA, USU SOM Class of 1995**, was interviewed reference his position as the Academic Director for Bushmaster. Within 18 months following his graduation from USU, Major Johnson, a flight surgeon with a special operations unit, was faced with a real-world mass

casualty situation overseas involving the United States Marines who did not have a physician with their unit. Major Johnson had to provide care within a Marine Battalion Aid Station; he knew what to do, due to the training he had received at USU, and was subsequently decorated for his actions.

Emergency Medicine Clerkship. The USU SOM requires all students to complete a ***Clinical Clerkship in Emergency Medicine*** prior to their graduation as physicians. In preparation for their clinical work in an Emergency Department, all of the senior students participate in an intensive overview of Emergency Medicine incorporated into the *MCM Course*. During this didactic phase, students are taught how emergency medicine physicians problem solve. Lecturers demonstrate the steps they use when evaluating patients in the Emergency Department. In small group discussions, led by experienced emergency medicine physicians, students have the opportunity to practice problem-solving techniques. Lectures, small group discussions, and assigned readings give the students the skills they need to work in an Emergency Department. Students leave for their clinical rotations with a solid understanding of Emergency Medicine.

Students may choose from a variety of sites (military and civilian) to perform their Emergency Department clinical rotations. All military hospitals having training programs in Emergency Medicine are open to USU SOM students. These include: the Darnall Army Community Hospital at Fort Hood, Texas; the Madigan Army Medical Center in Tacoma, Washington; the Naval Hospital in San Diego, California; the Naval Hospital in Portsmouth, Virginia; the Medical Center at Wright Patterson Air Force Base, Ohio; and, the San Antonio Uniformed Services Health Education Consortium, which encompasses the Wilford Hall Medical Center in Lackland, Texas, and the Brooke Army Medical Center located in San Antonio, Texas. In addition, USU SOM students can choose from among several high-volume, trauma intensive civilian sites including: Charity Hospital in New Orleans, Louisiana; the Ben Taub General Hospital in Houston, Texas; and, the University of Maryland Medical Center in Baltimore, Maryland. In the Emergency Department, students function under the supervision of experienced Emergency Medicine physicians and are expected to be active members of the Emergency Department team as they care for patients of all ages and with a variety of medical and surgical problems. Students are encouraged to take part in the didactic activities of the Emergency Department in addition to patient care. Each year, about ten USU SOM students choose Emergency Medicine as their career choice; many have gone on to become leaders in Emergency Medicine.

Operational Electives. The Department of Military and Emergency Medicine, through its Education Division or one of its three centers, sponsors several electives in operational medicine. These may include clinical rotations in military emergency departments or aerospace medicine clinics, enrollment in military courses, or attendance at the Joint Readiness Training Center. Qualification as a flight surgeon may be obtained through either the United States Air Force School of Aerospace Medicine or the United States Army School of Aviation Medicine; during the past years, the Army School has altered the timing and structure of their course specifically to enable USU SOM students better access to this form of occupational medicine. Whereas only one student had attended in the previous two years, five students and one faculty member attended during 2001; four of those six were the top four graduates of the demanding six-week Army course. Nine students attended during 2002. Two students worked in a trauma center in Armenia before their graduation in 2002. And, three students were sponsored by the USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) to accompany an Air Force unit on a humanitarian mission

to El Salvador during 2002; in 2003 and 2004, CDHAM provided funding for two fourth-year USU SOM students to participate as part of a nutrition-based study in Honduras.

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**USU SOM Curriculum Stresses a Military Focus.** In addition to the military unique curriculum described above, ***the USU SOM academic departments and faculty have structured all of their courses to include: topics specific to military medicine and not covered in the traditional medical school curriculum; and, teaching examples and cases drawn from military medicine.*** This content focus is reinforced by the fact that many of the faculty (one third of the billeted basic science faculty and two-thirds of the clinical faculty) are uniformed officers representing the Army, Navy, Air Force, and the Public Health Service; these unformed instructors provide experience and contextual correlations during their teaching of traditional topics. ***The unique practice of military medicine is woven throughout the four years of medical school.***

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**Curriculum Renewal.**

Background. The SOM curriculum utilizes a variety of educational experiences and learning formats, including lecture, laboratory, clinical correlation, small group discussion, computer and web-based experiences, patient simulator, standardized patients, and experiential exercises. The SOM vision for the undergraduate curriculum is that the science of today is taught in an environment that will foster increased long-term, self-directed learning tomorrow. Toward this end, the SOM Executive Curriculum Committee (ECC) completed an exhaustive study of the undergraduate curriculum, and revisions are on-going to minimize the traditional curricular *stovepipes* through course integration and the increased use of clinical material.

In both the first and second years of medical school, there is a heavy emphasis on small group learning. In the first year, this takes the form of laboratories in Structure and Function and discussion groups in Human Context. Additionally, the Introduction to Clinical Medicine Course starts in the first year and begins to develop history-taking and physical diagnostic skills. In the second year, laboratories continue in Pathology and Microbiology, while there is increased use of a small group *problem-based learning* educational format. In both Pathology and Clinical Concepts, groups of 8 to 12 students team with a faculty member to review clinical scenarios. The format of these encounters is designed to flow seamlessly into the second-year portion of the Introduction to Clinical Medicine Course and the clerkships during the third year.

Integration of Clinical Medicine and the Basic Science Experience. There are numerous examples of clinical medicine being integrated into *the basic science experience*. Close collaboration between the Departments of Radiology and Radiological Sciences (RAD) and Anatomy, Physiology, and Genetics (APG) led to the development of computer-based learning resources correlating basic anatomy with the radiological representation of normal and pathologic states. The integrated structure and function curriculum (Physiology and Anatomy) incorporates clinical faculty into its teaching. Several areas in particular - Cardiovascular, Renal, and Pulmonary - have demonstrated extensive clinical integration for many years. The Department of Pathology utilizes many clinical facilitators for its small group discussions. In addition, Pathology has coordinated the format of its case presentations with course directors from Clinical Concepts and Introduction to Clinical Medicine to provide a consistent experience for students. Pathology and Clinical Concepts have also coordinated their curriculum to provide the case scenarios in Clinical Concepts in sequence with topics being discussed in Pathology. The Department of Pharmacology also encourages clinical facilitators to participate in their small group exercises. There are currently several initiatives being considered to move basic science to the clinical years. One example is the proposal before the ECC to develop a computer or web-based curriculum of key basic science topics for exploration in the fourth year of medical school. These examples illustrate basic science and clinical integration either in place or under active consideration.

The Renewal Process. As the Chief Academic Officer of the SOM, the Dean is responsible for institutionalized curriculum management. Policy issues are reviewed and considered by the ECC, which reports to the Dean. Institutionalized curriculum renewal in the SOM is a high priority. The formalized process began with Phase I (1993-1995) of curriculum renewal. During Phase I, a steering committee with four subcommittees was developed to cover the following areas: 1) the history of medical education in the United States; 2) current experiments in curriculum reform; 3) curriculum at the USU SOM; and, 4) professional requirements and outcomes. Subcommittee reports and recommendations were generated and

reviewed by the faculty. The Dean's Office and academic departments then offered recommendations on how to best implement the committee's recommendations.

During Phase II (1996-1997), a steering committee and five subcommittees were established; they reviewed or completed the following: 1) objectives and goals; 2) an organizational template for curriculum management; 3) basic science and intra-departmental and clinical integration; 4) outcomes and evaluations of the clinical clerkships, both required and elective; 5) the establishment of topic groups; 6) subcommittee and topic group reports and recommendations; 7) a consensus on the recommendations and implementation planning; and, 8) the implementation process.

In February of 1998, the Dean charged the ECC with reviewing the December 1997 Curriculum Review Report produced during Phase II of the curriculum renewal process. The ECC was also charged with providing oversight for the planning process and the development of an implementation plan for curriculum renewal. This implementation plan is envisioned as an evolutionary process, with changes in the curriculum occurring in an incremental fashion. The ECC completed a draft of the SOM educational objectives, which was reviewed by the Dean and distributed to faculty, students, and staff for comment, and finalized in November of 1998. As changes to the curriculum occur, the SOM Dean has also directed that his office establish and monitor processes for student, faculty, and TriService evaluation of the curriculum changes.

Responsibilities of the Executive Committee on Curriculum. On August 2, 2001, the SOM Dean issued a Policy Memorandum updating the responsibilities of the USU SOM Executive Committee on Curriculum (ECC). The members of the ECC are drawn from the faculty, student body, and administration. Members are charged with representing the interests of the SOM as a whole; not as representatives of specific constituencies. The twelve members of the ECC have been designated with responsibility in seven areas to: 1) articulate, with the concurrence of the Office of the Dean, well-defined learning objectives that each student must meet to receive the M.D. Degree; 2) conduct a biennial review of each required course/clerkship in the SOM undergraduate curriculum, including content, format, teaching methods, course materials and methods for verifying that graduating students have met all of the learning objectives; 3) establish a prospective course/clerkship review schedule that gives course/clerkship directors sufficient time for proper consultation and preparation before the biennial review; 4) complete the course/clerkship review and assessment within 60 days of submission and presentation by the course/clerkship director, including submission of findings and recommendations to the Office of the Dean; 5) request, if necessary, through the Office of the Dean, further information, seek consultation with faculty or external consultants, and, when appropriate, sponsor symposia on curriculum to assist course/clerkship directors or topic group leaders in curricular planning or improvement; 6) periodically review institutional policy concerning the curriculum and educational practices to ensure consistency in the implementation and management of the undergraduate medical education program; and, 7) address other curricular issues and educational initiatives as charged by the Dean, SOM.

Issues addressed by the ECC in recent years include: coordination and/or changes to examination schedules; changes to the academic schedule grid; review of grading policies; review of mandatory attendance policy; discussion and response to student-generated After-Action-Reports; review of fourth-year requirements; consideration of a diversity curriculum proposal; review of changes to the first and second-year Introduction to Clinical Medicine Courses; and, review of the students' military responsibilities and their impact on the overall academic experience.

Responsibilities of Department Chairs and Faculty. The Department Chairs are responsible for establishing objectives, designing content and presenting each course/clerkship assigned to his/her department and for assuring that the performance of students is evaluated in an appropriate and timely manner and in accordance with institutional policy. The Chairs are also responsible for supporting Course or Clerkship Directors with requisite faculty and specifically for assigning teaching responsibilities to faculty members and for allocating departmental resources as required to support the courses, clerkships, selectives, and electives assigned to their departments. Course or Clerkship Directors for departmental-sponsored courses will be appointed by the responsible Chair; Course or Clerkship Directors for interdepartmental courses will be appointed by the Dean, SOM. Faculty members are the content experts in the individual basic science and clinical science disciplines and collectively are responsible for the SOM curriculum. The processes of curricular design, implementation and evaluation must involve broad participation by the SOM faculty both at the departmental level and at the institutional level. Every assigned faculty member is responsible, generally, in coordination with the Course or Clerkship Directors, for fulfilling his/her assigned teaching responsibilities in the areas of undergraduate curriculum.

SOM Dean Implements a Review and Revision of Educational Objectives for Compliance with LCME Guidance. During the past year, the Dean of the SOM appointed a subcommittee of the Executive Curriculum Committee (ECC) to review and revise the 1998 educational objectives and ensure compliance with the LCME's *Functions and Structure of a Medical School*, published in September of 2003. A draft report was submitted to the ECC for comment and then distributed to the faculty for their review and comment; then, the final document was to be submitted to the Dean for approval/disapproval. **William Haffner, M.D., CAPT, USPHS (ret.), Professor and Former Chair of Obstetrics and Gynecology,** was selected to chair the subcommittee. The subcommittee submitted the draft revisions of the educational objectives to the Dean, SOM, as reported to the Faculty Senate in July of 2005. Following his approval, the Dean will next task the ECC to work with the department chairs and course/clerkship directors to develop outcome measures for implementation, as appropriate, for each department/discipline covering each of the 42 objectives. The resulting outcome measures will be analyzed by the ECC, which will provide guidance to the course/clerkship directors reference any modifications that are required to meet the objectives or, alternatively, to reassess the objectives themselves through an on-going, continuous improvement process. (*A complete summary of this activity is provided earlier in the **ACCREDITATION** portion of this section of the Journal*.)

Center for the Enhancement of Healthcare Training and Outcomes. The Liaison Committee on Medical Education (LCME) has stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of the Department of Medical and Clinical Psychology and the Department of Family Medicine, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. Serving as a partial but significant infrastructure for the USU SOM Center for Health Disparities Research and Education (USU/CHD), described below, ***the USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes***. Specifically, CEHTO was established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies

addressed in the classroom; 3) facilitate the development of culturally respectful relationships - inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided.

Fundamentally, ***CEHTO is designed to teach current and future health care professionals how to increase their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal and communication skills, and cultural awareness to effect the most beneficial treatment for patients from diverse backgrounds***. As a component of the Family Practice Clerkship Curriculum, for example, medical students receive didactic and experiential training. Via facilitated conversations, small and large group exercises, and multi-media presentations, students learn about how cultural factors affect them, their patients, and their interactions with others. Experiences such as these foster an appreciation of cultural diversity, the patients' overall health needs, and, most importantly, how our own beliefs and biases can impact medical decision-making and patient care. Moreover, this training gives SOM students the opportunity to consider, rehearse, and evaluate specific strategies to deal most effectively with diverse multi-cultural populations. Complementing CEHTO training, Family Medicine curricula provide hands-on, experiential training modules that utilize standardized patients (patient actors) at the USU Military Medical Simulation Center (SIMCEN). Using realistic behavioral simulations, this state-of-the-art medical simulation center provides a unique forum in which participants can practice, develop, and refine new skills, and translate increased cultural awareness into culturally proficient behaviors. Detailed feedback is provided and individualized behavioral prescriptions are generated to assist participants in setting objective goals for improvement.

During 2003, the University and the SOM Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Center for Minority Health and Health Disparities (NCMHD/NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine,** served as the initial Principal Investigator on the NCMHD/NIH grant; upon her departure, **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology,** was designated as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. As part of Project EXPORT, CEHTO assists in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

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**Departmental Review.** A program was adopted by the School of Medicine in 1998, which mandated each department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2004, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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## STUDENT AFFAIRS

**When asked how my career has been influenced by my medical school education at USUHS, I can summarize the discussion to a simple phrase: I became a military physician, not merely a physician in the military... USUHS was the catalyst from which my entire career has evolved. Today, more than ever, this catalyst is necessary if we are to train and retain military physicians who place enormous value on the unique art and science of a military medical profession. We must have a cadre of military medical officers who practice the art and science of military medicine with an understanding of the past, where we have come from, applying new capabilities and skills within the context of military operations and be able to envision and work toward a more capable, flexible and agile military medical system in the future.**

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence to USU, April 13, 2005.

**Class of 2008.** During August of 2004, the School of Medicine (SOM) matriculated its twenty-ninth class (the Class of 2008). The 1,826 applicants, representing all 50 states, competed for 167 positions. There were approximately 11 applicants for each position, which allowed a diverse and highly qualified selection of candidates with a motivation toward public service. The Class of 2008 includes 63 Army, 51 Navy, 51 Air Force, and 2 United States Public Health Service medical students. The demographics of the class are depicted as follows:

- Seventy-seven students (46 percent) were associated in some way with the military before USU matriculation. Of those,
    - Thirty-three students served previously as officers; ten had previously served as enlisted personnel; sixteen were service academy graduates; sixteen were direct graduates of ROTC programs; and, two were reservists;
- Forty-nine students (29 percent) are women;
- Twenty-six class members (16 percent) are minority students (including 8 students from groups classified as underrepresented by the Association of American Medical Colleges); and,
- The average age of the entrants at the time of application was 24.9 years.

All members of the Class of 2008 hold Baccalaureate Degrees; thirteen students hold Master of Science Degrees and two have been awarded Doctorates. Biology was the most represented undergraduate major of the matriculants (34 percent); fourteen percent of the class had majors in Chemistry; Engineering

(nine percent); and, seven percent had majors in Biochemistry. Some of the other disciplines in which members of the Class of 2008 hold degrees are Microbiology, Political Science, Neurobiology, Psychology, Nursing, History, and Business.

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**The Office of Student Affairs.** Throughout Fiscal Year 2004, the Office of Student Affairs (OSA) was engaged in personal and/or professional academic counseling and career guidance for the 668 students in the SOM. Beginning in September of each year, OSA conducts well over 300 formal interviews. In 2004, this process formally began with the post-matriculation interviews of all 167 freshmen from the first-year class.

Structured Interviews for the First Year Class. The purpose of the MS-I (medical student-first year) interview is to engage each new medical student in a relationship with the OSA and the office staff who will manage his/her professional development and career guidance. The interview is open with an emphasis on the future partnership (or the individual management and consulting network) that will exist between each student and the Associate Dean and two Assistant Deans in OSA. The interview covers five areas: 1) Transition - the move to Washington, i.e., housing, getting settled, family issues; 2) Sense of Membership in the Class, i.e., within and between Services, professional, social; 3) Sense of Professional Vision, i.e., vision for what will come after medical school; 4) Adjustment to Student Life, i.e., how are they managing the 24-hour clock; and, 5) Inquiry about Image, i.e., aside from the roles of student, spouse, parent, athlete, what really defines them? Students are free to raise any questions, concerns, or thoughts. The interviews require considerable time, but have definitely proven to be worth the effort for both the students and OSA. These interviews set the stage for an on-going dialogue with each student over the four years of medical school and for establishing a sense of community throughout the student body.

Sponsor Program. In January of 2004, OSA allocated sponsor assignments for the newly accepted students in the Class of 2008. Upon acceptance to USU, members of the incoming class are individually matched with members of the current freshman class. First-year students serve as the incoming students' sponsors; the student-sponsor answers questions about housing, moving to Washington, D.C., family issues, military summer training, and many other topics. The student-sponsor relationship has proven to be a valuable tool in assisting the incoming students through matriculation.

USMLE Board Examinations. During Fiscal Year 2004, OSA prepared the second-year students for the United States Medical Licensing Examination (USMLE) Step 1 Board Examination, which the students took between May and June of 2004, prior to beginning their first of the third-year clinical rotations. During 2004, OSA provided class-wide presentations covering the fundamentals of the examination process, test preparation strategies, and test-taking skills. Students also organized their own informal programs, which have included mini-lectures on broad relevant topics, meetings with select faculty, and group study sessions. The USU first-time pass average for the Step 1 Board Examination during 2004 was 93 percent. Most of the USU fourth-year students (SOM Class of 2005) completed the Step 2 Board Examination between July and September of 2004. The overall performance for the Class of 2005 was strong; the average score for the class was 213; and, the pass rate was 93 percent.

Third-Year Clerkship Scheduling. Also during February, OSA met with the second-year students to schedule their third-year clerkships. To increase student input into the orchestration of their third-year clerkship schedule, OSA has moved from a system where students were simply given a pre-selected schedule of randomly assigned clerkships. The student now has the ability to place rotations of special interest in the first half of his/her junior year and the opportunity to experience potential career choices at an early point. In addition, the current system allows students to coordinate some of the required travel in their academic third year with personal events, which may already be planned or anticipated. The staff of OSA conducted Round 1 clerkship selections for the Class of 2006 using randomly assigned numbers. During the second week of February, students met as a group and picked rotations for the remaining rounds. The students shared equally in opportunities for assignments of choice and expressed their appreciation for the process.

Graduate Medical Education Planning Interviews. OSA conducts interviews with the third-year medical students during the fall term. During the first few months of the 2004 Academic Year, OSA met individually with members of the junior class to conduct fourth-year planning. The hour-long meetings covered Graduate Medical Education (GME) planning, specialty choice, interviews, and specific sequencing of senior rotations to maximize the selection of their residency of choice; again, available selections for senior-year rotations exceeded the general expectations of the students. OSA arranged program schedules, which enhanced student growth, professional experience, and individual preferences. A major product of this process is the ***Medical Student Performance Evaluation, MSPE*****,** or ***Dean's Letter***, which presents a comprehensive picture of each student's strengths. Selection for GME positions is competitive; OSA and students worked together to create the best nomination packages possible.

Graduate Medical Education Selection Board. The Joint Service Selection Board convened during the week of December 3-6, 2004; and, 168 USUHS seniors (the Class of 2005) were selected for PGY-1 positions: Army - 65; Navy - 51; Air Force - 52. The overall selection rate for FIRST CHOICE programs was 66 percent. USU had 112 out of 168 students match for first choice both in specialty and training site. Sixteen additional students from the Class of 2005 received their first choice in specialty, resulting in 76 percent (128 out of 168) receiving their first choice in specialty. One third of the class (34 percent) was selected for training in a primary care specialty. Fifty-seven seniors will begin their residency training during this Summer in the following areas: Family Medicine - 23; Internal Medicine - 14; Pediatrics - 13; and, Obstetrics and Gynecology - 7. This process once again demonstrated confidence in the USU SOM graduates by the directors of the MHS GME Programs.

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**The USU Military Medical Student Association.** The Military Medical Student Association (MMSA), a quad-service, student-run organization, originated at USU more than fourteen years ago. MMSA's goals include developing lines of communication among military medical students nationwide, providing information, and promoting morale and unity among future military medical officers.

Unlike USU medical Students, the Health Professions Scholarship Program (HPSP) students attend universities in the civilian sector; they receive tuition and books and are paid a monthly stipend while working toward their medical degrees. The HPSP students receive limited military training and influence while attending the civilian schools. In order to share the unique military training received at USU, MMSA has sponsored conferences where residency directors and medical specialty representatives from around

the country, and USU staff and faculty members present lectures and hold discussions on various topics, including service specific issues, military medical history, operational considerations of military medicine, and basic military concerns that affect both USU and HPSP medical students. The USU MMSA has also established the *MMSA Journal*, which provides valuable military information of interest to medical students; the MMSA goal is to make copies of the journal available to all HPSP students.

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## ACHIEVEMENTS OF THE SOM ALUMNI

**As President of the Association of American Medical Colleges, which represents the nation's 125 accredited medical schools as well as 400 major teaching hospitals and 90 academic and professional scientific societies, I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences. As I know you realize, this institution's alumni provide the backbone of the senior leadership of the three services' medical departments.**

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

**USUHS graduates have proven the enormous value of their unique talents in every U.S. combat operation since 1980. As a former White House Physician, I can personally attest to the important contributions of USUHS graduates during the First Gulf War. As a member of the USUHS Board of Regents, I receive regular reports about the outstanding performance of USUHS graduates as combat medical leaders in Afghanistan, Iraq, and throughout the world. Many of our young men and women who have been wounded in the War on Terrorism owe their lives and their futures to USUHS graduates who are serving magnificently where they are trained to be - far forward on the battlefield.**

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member of the USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

**As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS SOM graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.

**Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military healthcare professionals to meet current and future challenges.**

- **Richard B. Myers, Chairman of the Joint Chiefs of Staff,** Letter to USU, March 29, 2002.

**I deployed to the Gulf very early, August 11, 1990, as a senior medical officer with the Air Force Special Operations Command. Deployed in this capacity, my responsibilities ranged from flying training and combat support missions to representing my command at theater-level planning conferences... The heat in August was incredible, with temperatures up to 125 degrees. Yet our maintenance personnel had to work around the clock to get our aircraft combat ready. Just sleeping six hours in the heat caused dehydration to the point of dizziness. Our medical team was on the flight line and around our tent-city bringing sunscreen and ice water to the personnel because they could not drink 100 degree water out of a canteen.**

***My training at USUHS had prepared me for working in austere conditions without fixed facilities.*** **The tap water in our camp became contaminated by the sewer system, and water tanks had to be provided with chlorine levels monitored daily. Because of the *military medical history* classes I had at USUHS, I knew that disease and non-battle injuries could make an army ineffective before the battle began. *Preventive medicine* is an entire department and course of study at USUHS. I had the training and references...to avoid repeating the mistakes of previous wars... Because of the emphasis on *tropical medicine* at USUHS, I was able to advise the Commander and troops about potential infections and how to protect themselves... Because we *studied the air evacuation system* and did practice exercises using it at USUHS, I was able to coordinate a unique mini-mobile aeromedical staging facility at our intermediate operating base. This provided the transition from our helicopter rescue aircraft to the C-130 medical evacuation system. As our troop build-up progressed, hospitals from each Service increased. Because at USUHS I had been taught *the organization of medical systems in the other Services*, I was able to arrange referrals for our patients much more easily...We had no logisticians, but were able to obtain supplies through the Army depot system, which I also learned about at USUHS.**

**Another area of major concern for our personnel was chemical warfare. Because of the thorough preparation and field training I had as a student at USUHS, I was *able to develop a training program in unconventional warfare, such as chemical and biological threats*, which increased confidence and decreased anxiety in our troops... When we deployed to our forward locations, there were no *designated disaster preparedness personnel*. The USUHS experience came in handy again, as I assumed those responsibilities. A plan for *decontaminating aircraft, vehicles, and personnel* was created. Materials were purchased and positioned to maximize readiness.**

**To summarize the impact of the 4-year immersion in military medicine at USUHS on my preparation for war, I appreciated the operational mission of my unit and how I, as a medical officer, fit into the process of planning and executing that mission. This went well beyond**

**treating patients. It involved analyzing the tactical situation, advising the Commander, and integrating with other Services. *USUHS graduates were well prepared.***

- **Lieutenant Colonel Charles Beadling, USAF, MC, USU Class of 1984, (currently at the Rank of 0-6),** Testimony before the Senate Appropriations Sub-Committee on Defense, April 14, 1994, page 95.

**General Overview.** The graduating Class of 2004 was the twenty-fifth class to receive Medical Degrees from USU. ***As of April 2005, USU has granted 3,587 Doctor of Medicine Degrees; 2,695 of those graduates remain on active duty in the Uniformed Services (Army - 1,035; Navy - 780; Air Force - 792; USPHS - 88). As of April 2005, the active duty physician force in the MHS totalled approximately 11,495 physicians (Army - 4,140; Navy - 3,855; Air Force - 3,500). The 2,607 USU SOM alumni on active duty represent over 22.7 percent of the total physician force in the Department of Defense.*** USU graduates have a seven-year obligation, which only begins after the completion of three-plus years of residency training. This obligation is exclusive of any other service obligations they may have already incurred, such as graduation from one of the Service Academies. After twenty-five graduations, data is now available to document that the USU SOM graduates are meeting, or surpassing, the goals established by the founders of USU. For example, Congress had envisioned that the USU SOM graduates would equal at least 10 percent of the total physician force; the USU SOM has more than doubled that original milestone; and, where Congress hoped for retention rates close to 70 percent, the USU graduates have also exceeded that goal. The average USU physician graduate serves 20 years on active duty. USU has steadily proven to be an excellent accession source for career-physician officers uniquely skilled in the practice of military medicine.

An example of the critical role of USU graduates in the MHS was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the Center for Navy Analysis (CNA) had provided significant data on the retention of physicians. The Navy Surgeon General informed the Congressional Committees that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. ***Overall, the median length of non-obligated service for physician specialists in the MHS averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years***.

Significantly, in April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* of its major study, Life-Cycle Costs of Selected Uniformed Health Professions. The second of six major findings states: *policy-makers need to consider the costs and benefits for each accession source. For example, even though USUHS accessions are the most costly* (the General Accounting Office has reported that when all Federal costs are included, the cost of a USU graduate is comparable to the cost of an HPSP graduate), ***their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements*** (page three of the report).

***Reliability and Sustainability of Accession Sources*: Of current accession programs, USUHS is the most reliable and cost-effective source for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health**

**Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, specialties and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligation. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.**

***Potential Risk of Change*: Absent any one of the three accession sources, it is unlikely that the remaining two can support an all-volunteer military medical force. The Center for Navy Analyses (CNA) estimates that it would require at least 895 additional HPSP accessions annually to replace the current 165 USUHS graduates. This may not be feasible in today's environment for medical school applicants. Currently there is a general decline in the number of U.S. medical school applications, an increase in the number of female applicants (who generally have less or little long term interest in military service), and a general decrease in medical students applying for HPSP scholarships** (currently, less than one applicant per HPSP slot)**. Additionally, current HPSP recruitment practice favors the accession of physicians less likely to specialize in meeting critical wartime requirements.**

***Retention*: USUHS graduate retention is greater than other sources. The USUHS Alumni represent approximately 13 % of new medical officer accessions, 23 % of the total medical officer force, and 33% of those in the ranks of 0-5 and 0-6. Reliance on other sources would require a larger recruitment pipeline (to ensure numbers and specialty mix), reduce assignment flexibility, and ultimately increase total system costs.**

***Support to Military Operations*: The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DOD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51 % of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DOD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** *The Uniformed Services University of the Health Sciences*, White Paper, April 18, 2005, pages 2-3.

In just a short timeframe, USU graduates have become well respected in their medical specialties and provide continuity and leadership for the MHS serving in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Afghanistan and Iraq, and to assignments aboard ships at sea or with the Blue Angels, the NASA Johnson Space Center, the Secretary of Defense, and the Congress of the United States. Following the terrorist attacks on September 11, 2001, USU graduates were strongly represented among the medical relief workers at the World Trade Center and at the Pentagon; they led the efforts to identify remains at the Dover Port Mortuary; and, USU graduates assisted in directing the Nation's medical response in the wake of the anthrax attacks. On May 12, 2003, USU was provided with an *initial* (and ever-increasing)

listing of physicians deployed for Operation Iraqi Freedom from the Army; of the 346 Army physicians, 67 (almost 20 percent) were USU SOM alumni. Other alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty officers and enlisted personnel, retirees, and family members. Currently, 15 of the 60 Specialty Consultants to the Army Surgeon General are USU graduates; 10 of the 44 Specialty Consultants to the Navy Surgeon General are USU graduates; and, 19 of the 72 Specialty Consultants to the Air Force Surgeon General are USU graduates. And, as quoted above, USU SOM graduates represent 51 percent of the physicians assigned to the Army Special Operations Forces. USU graduates are, and continue to provide, a strong cadre of leaders who ensure the continuity of military medicine.

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**Second USU Alumnus Promoted to 0-7.** USU's second flag officer, **Brigadier General Charles "Bill" Fox, MC, USA, USU Class of 1981**, was initially triple-hatted as the Corps Surgeon for the XVII Airborne Corps, Commander of the 44th Medical Command, and Director of Health Services at Fort Bragg, North Carolina. He is currently assigned as the Commanding General at the Brooke Army Medical Center, Great Plains Regional Medical Command, at Fort Sam Houston, Texas. During 2003, he received the Norman M. Rich Department of Surgery 2003 Baron Dominique Jean Larrey Award for Excellence in Military Surgery from the USU Surgical Associates. (**Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981,** was the first USU alumnus to be selected as a flag officer.)

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**Third USU Alumnus Selected for Promotion to 0-7.** USU's third alumnus selected for flag officer was **Brigadier General Bill Germann, USAF, MC, USU Class of 1982;** he was selected during 2003 to command the 89th Medical Group, Malcolm Grow USAF Medical Center, at Andrews Air Force Base, Maryland.

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**Fourth USU Alumnus Selected for Promotion to 0-7.** USU's fourth alumnus selected for flag officer was **Brigadier General Thomas Travis, USAF, MC, USU SOM Class of 1986**. He was promoted to Brigadier General on September 3, 2004; BG Travis is the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks Air Force Base), Texas.

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**USU Alumni Earn Promotions to 0-6.**

USU Army Graduates Selected for Promotion to Colonel - 2004/5.

Thirty-five percent of the medical corps officers selected for promotion to Colonel (0-6) were USU SOM graduates. During February of 2005, the Army Medical Corps announced that 85 medical corps officers had been designated for 0-6. Thirty of those selected were USU SOM alumni.

USU Navy Captain Promotion Selectees - 2004.

The Navy released the promotion list for Captain (O-6) Medical Corps during the first quarter of 2004. There were 197 physicians considered for promotion to O-6 in or above zone. Of those, 21 were USU alumni; 176 were non-USU alumni. Overall, 28 physicians were selected for promotion. Of the 21 USU alumni considered for promotion in or above zone, 6 were selected, resulting in a 28.6 percent selection rate. Of the 176 non-USU alumni considered for promotion, 20 were selected in or above zone, resulting in a 11.4 percent selection rate. Again, USU graduates were selected at a rate higher than their peers. Two officers were selected for below zone promotions; one of those two was a USU alumnus.

USU Air Force Graduates Selected for Promotion to Colonel - 2004.

During late 2004, 45 Lieutenant Colonels were selected for promotion to Colonel (0-6). Of the 45 selected for promotion, 17 were USU alumni from the USU SOM Classes of 1988, 1989, 1990; USU SOM alumni represented 38 percent of those selected for promotion in the United States Air Force. Two officers were selected for below zone promotions; one of those two was a USU alumnus.

United States Public Health Service Graduate Selected for Promotion to Captain - 2004/5.

The U.S. Public Health Service selected **Michael C. Engel, USU SOM Class of 1990, for promotion to 0-6. Dr. Engel received an Exception Proficiency Promotion**, which is an accelerated promotion awarded to an individual who possesses exceptional capabilities and is performing in an assignment above his current grade.

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**USU SOM Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU SOM Alumni.**

**Class of 1980.**

**CAPT Sandra Yerkes, MC, USN,** serves as the **Deputy Chief of the Navy Medical Corps**, assigned to the Navy Bureau of Medicine and Surgery (BUMED) in Washington, D.C. CAPT Yerkes is currently the last member of the SOM Charter Class who remains on active duty; she was recognized during the May 2004 USU SOM graduation ceremonies.

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**Class of 1981.**

**CAPT Myron D. Almond, MC, USN,** retired from the Navy in July of 2004; he is currently employed by the Lakeview Center, in Pensacola, Florida.

**Colonel Naomi Aronson, MC, USA,** is currently a billeted, full-time faculty member of the USU SOM Department of Medicine; she also serves as the **Director of the Leishmaniasis Treatment Center at the Walter Reed Army Medical Center**.

**Colonel Donald Bradshaw, MC, USA,** serves as the **Commander, Southeast Regional Medical Command/Eisenhower Army Medical Center,** at Fort Gordon, Georgia. ***Colonel Bradshaw was recently nominated for promotion to Brigadier General***.

**Brigadier General C. William Fox, Jr., MC, USA,** serves as the **Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command**, Fort Sam Houston, Texas. BG Fox is USU's second alumnus to achieve flag rank behind Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981 (*BG Fox is currently in the process of retiring from active duty*).

**Colonel Kevin Keenan, MC, USA**, serves as the **Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina.**

**Colonel Deborah Kretzschmar, USAF, MC,** serves as the **Commander, 3rd Medical Group, Elmendorf Air Force Base, Alaska**.

**Colonel Michael Lischak, USAF, MC,** retired from the Air Force during 2004. He is the Medical Director for Corporate WORx, the Occupational Medicine Division of Columbia St. Mary's, in Milwaukee, Wisconsin.

**CAPT David Wade, MC, USN,** is serving as the **Commander, Naval Medical Clinic, Patuxent River, Maryland**.

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**Class of 1982.**

**CAPT Dean A. Bailey, MC, USN,** is currently the **Officer-in-Charge, Navy Environmental and Preventive Medicine Unit-5, Naval Station, San Diego, California.**

**Colonel David Burris, MC, USA, FACS, DMCC,** has served as the **Interim Chair of the USU School of Medicine Department of Surgery since October of 2002**. Colonel Burris completed his general surgery residency at the Walter Reed Army Medical Center, has his Critical Care Certification, and is the Military Region XIII Chief for the Advanced Trauma Life Support (ATLS) Subcommittee of the Committee on Trauma of the American College of Surgeons. In that position, Colonel Burris is responsible for all ATLS programs within the Department of Defense. *During March of 2002, Colonel Burris reported that USU is one of three universities in the country permitted to teach the ATLS Course without using animals.* The American College of Surgeons allowed testing a non-animal model program for the teaching of ATLS; and, the USU President and Dean, SOM, approved the use of non-animal simulators in the Courses at USU. During 2003, Colonel Burris was deployed to Iraq and has since returned to USU.

**Colonel Don J. Daniels, MC, USA,** retired in March of 2005; he served as a faculty member of the Anesthesia Service at the Brooke Army Medical Center, Fort Sam Houston, Texas.

**Brigadier General William Germann, USAF, MC,** is USU's third alumnus to achieve flag rank behind Brigadier General William Fox, MC, USA, USU SOM Class of 1981, and Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981. **Brigadier General Germann has been serving as the Commander of the 89th Medical Group (Malcolm Grow USAF Medical Center), Andrews Air Force Base, Maryland, since June of 2003**. In September of 2005, he will become the Command Surgeon for the United States Air Force Materiel Command, Wright-Patterson Air Force Base, with oversight responsibility for nine Air Force Medical Treatment Facilities.

**CAPT Oleh Haluszka, MC, USN (Retired),** is the Director of Gastrointestinal Endoscopy at the Fox Chase Cancer Center, in Philadelphia, Pennsylvania.

**Colonel George Johnson, USAF, MC,** is serving as the **Deputy Commander, David Grant United States Air Force Medical Center, Travis Air Force Base, California**.

**Colonel William P. Madigan, MC, USA,** recently retired from the Army. He served as the Chief of Ophthalmology at the Walter Reed Army Medical Center, the Army's Consultant to the Surgeon General for Ophthalmology, USU SOM Ophthalmology Division, and the architect of the Army's Laser Refractive Surgery Program. Through the Army's Military Refractive Readiness Program, directed by Colonel Madigan, a soldier's vision can be dramatically improved, enabling him to better perform his duties and improve his survivability on the battlefield. It is estimated that one-third to one-half of soldiers on active duty require some form of optical correction. Since the first laser eye surgery was performed in January of 2002, over 1,000 patients have been treated. Dr. Madigan is now in the Department of Ophthalmology at the Children's National Medical Center, in Washington, D.C.

**Colonel Richard L. Marple, MC, USA,** is serving as the **Deputy Commander for Clinical Services for the U.S. Army Medical Activity, Heidelberg, Germany.**

**CAPT Peter Martin, MC, USN,** retired from the Navy during 2004; he is now on staff in the Head and Neck Surgery Department of the Kaiser Permanente Medical Center, in San Diego, California.

**Colonel David T. Orman, MC, USA,** is assigned to the **Department of Psychiatry at the Tripler Army Medical Center, in Hawaii**.

**Colonel Lawrence Riddles, USAF, MC,** is serving as the **Commander of the 375th Medical Group, Scott Air Force Base, Illinois**.

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**Class of 1983.**

**CAPT Michael Anderson, MC, USA,** is the **Commanding Officer, Naval Hospital, Great Lakes, Illinois**.

**Colonel James Bruckart, MC, USA,** is serving as the **Command Surgeon, United States Army III Corps, Fort Hood, Texas**.

**Colonel Joseph Caravalho, MC, USA,** is serving as the **Commander, 44th Medical Brigade (rear)(provisional), Fort Bragg, North Carolina.**

**Colonel Cliff Cloonan, MC, USA (Ret.),** served as the Interim Chair of the Department of Military and Emergency Medicine at the USU SOM through June of 2003. Colonel Cloonan was assigned to USU in July of 2000, where he served as the Vice-Chair of the Department until August of 2001, when Craig Llewellyn, M.D., Colonel, USA (Retired), stepped down as the Department Chair of Military and Emergency Medicine. Colonel Cloonan had previously served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, for three and one half years. From 1990 through 1993, Colonel Cloonan served in the USU SOM Department of Military and Emergency Medicine as an Assistant Professor; he was also the Course Director for both the *Combat Medical Skills Course* and the *Introduction to Combat Casualty Care Course*. In addition to serving as Interim Chair, Colonel Cloonan also served as the Emergency Medicine Specialty Consultant to the Army Surgeon General; following a distinguished career, Colonel Cloonan retired from active duty, during 2004.

**CAPT Jonathan Cutting, MC, USA,** is serving as the **Commanding Officer, United States Naval Hospital, Rota, Spain**.

**Colonel Warner "Rocky" Farr, MC, USA,** serves as the **Command Surgeon for the United States Army Special Operations Command at Fort Bragg**, **North Carolina.**

**Colonel Bradley Harper, MC, USA,** relocated, during 2004, from Puerto Rico to San Antonio, Texas, with the Army's Southern Command as the Command Surgeon. His current assignment is **Commander, United States Army Health Clinic, Vincenza, Italy**.

**Colonel Bob Lyons, MC, USA,** served as the **Deputy Commander for the United States Army 21st Combat Support Hospital** during 2004; he was featured by the Public Broadcasting Service (PBS)

program, *NOVA: Life and Death in a Combat Zone*, on March 2, 2004. Colonel Lyons participated in the creation of a state-of-the-art hospital in tents on the outskirts of Baghdad, Iraq.

**Colonel John McCafferty, USAF, MC,** is serving as the **Commander, 71st Medical Group, Vance Air Force Base, Oklahoma**.

**CAPT John Perciballi, MC, USN,** was recognized by the television media and the National press as a member of the Devil Docs in Iraq and for his skills outside of the operating room (*Devil Doc Trades Desert Surgeries for Tactics of U.S. Military Chess Team*) on September 8, 2003, due to his competition in the NATO Chess Championship in Copenhagen, Denmark; he is currently serving as a General Surgeon stationed out of the Naval Hospital, in Pensacola, Florida.

**CAPT Glen Schnepf, MC, USN,** has been selected to serve as the United States **Navy Liaison with the World Health Organization,** in Switzerland.

**Colonel Michael Spatz, USAF, MC,** is serving as the **Deputy Assistant Surgeon General for Medical Force Development, Medical Corps Director, and Chief, Air Force Medical Service Education and Training, Office of the Air Force Surgeon General**. Colonel Spatz oversees all force development for the medical corps, to include medical student training and scholarships, graduate medical education, promotions, assignments, special pays, recruiting and retention, as well as all education and training for the Air Force Medical Service.

**CAPT Kevin Yeskey, M.D., USPHS (Ret.), FACEP, Associate Professor, Department of Military and Emergency Medicine, Board Certified in Emergency Medicine, Director, USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM),** served during 2001 as the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control (CDC) in Atlanta, Georgia. CAPT Yeskey was named as the Acting Director of the program on August 20, 2001; and, he was selected as the Director on December 1, 2001. As the Director, he was charged with enhancing CDC's capacities to assist States and other partners in responding to bioterrorism. In addition to infectious disease concerns, other CDC efforts under this program included consideration for chemical terrorism, a National Pharmaceutical Stockpile, and National Lab Enhancement. During 2002, CAPT Yeskey served as the Director, Office of Emergency Response, in the newly established Department of Homeland Security, followed by a brief assignment with the Federal Emergency Management Agency (FEMA), until his retirement, in 2004. **Dr. Yeskey currently serves as the Director of the USU Center for Disaster and Humanitarian Assistance Medicine, in the Department of Military and Emergency Medicine**.

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**<u>Class of 1984.</u>**

**Colonel Charles Beadling, USAF, MC,** previously served as the Commander of the 375th Medical Group, Scott Air Force Base, Illinois, during 2003. **Colonel Beadling is currently serving as the Interim Chair of the USU SOM Department of Military and Emergency Medicine**.

**Colonel Sharon Harris, MC, USN,** retired from the Navy during 2004; she is currently a Staff Endocrinologist with the Quincy Medical Group, in Quincy, Illinois.

**CAPT Michael Holtel, MC, USN, serves as the Otolaryngology Department Chair and Residency Program Director at the Tripler Army Medical Center.**

**CAPT Sandra Kweder, M.D., USPHS, Associate Professor, USU SOM Department of Medicine,** serves as the **Deputy Director of the Food and Drug Administration's Office of New Drugs**. CAPT Kweder's previous assignments included serving as Deputy Director of the Office of Drug Evaluation IV, Co-Chair of FDA's Pregnancy Labeling Taskforce, Acting Director of the Office of Review Management, and Acting Director of the Office of Drug Evaluation II.

**CAPT Diane Mitchell, M.D., USPHS,** serves as the **Deputy Director for a large division at the Center for Devices and Radiological Health, Regulatory Affairs for Reproductive Devices, at the Food and Drug Administration**.

**Colonel Kent Murphy, USAF, MC,** was recognized by U.S. Medicine, a medical news organization, for his pioneering work in information therapy. **Colonel Murphy, founder of the Air Force Academy's Center of Excellence for Medical Multimedia in 1998, was awarded the Frank Brown Berry Prize in Federal Healthcare**. His influence is far reaching in the military medical world, with the most significant impact branching from his work with the Academy Center. The concept behind the Air Force Academy Center is that information technology can empower patients by educating them on medical techniques. The Center uses high-level cinemagraphic technology to create multimedia programs. The programs cover an array of medical topics including pregnancy, diabetes, early detection of colon cancer, suicide prevention, and outpatient surgical procedures. The Center uses animation to make the topics interesting and utilizes technology found in movies to inform patients from underserved populations.

**CAPT Chris Osgood, MC, USN,** retired from the Navy in 2004; he is currently an Orthopaedic Surgeon with Group Health, in Tacoma, Washington.

**Colonel Terry Walters, MC, USA,** serves as the **Brigade Commander of the 1st Medical Brigade at Fort Hood, Texas**. Colonel Walters is also a graduate of the Master of Public Health Program at USU; she was recently featured in the Killeen (Texas) Daily News, *Former Immigrant Lives American Dream*, on February 23, 2004.

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**Class of 1985.**

**Colonel Mark Bagg, MC, USA,** serves as the **Chief of Orthopaedic Surgery at the Brooke Army Medical Center**; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, on December 3, 2003, for his service in addressing the traumatic orthopaedic injuries of soldiers wounded in Iraq.

**Commander Margaret Bash, M.D., USPHS,** is currently conducting bacterial vaccine research and development in a joint program through the Food and Drug Administration and the National Institutes of Health.

**CAPT Hans Brings, MC, USN,** is a Vascular Surgeon who was attached to the Navy's Fleet Hospital Three (FH-3), the first expeditionary medical facility assigned to a war zone. CAPT Brings, who is stationed at the National Naval Medical Center in Bethesda, Maryland, was among a team of 300 health care providers and construction battalion personnel deployed to Iraq with the Pensacola, Florida-based fleet hospital. The 9-acre, 116-bed facility is designed to provide treatment in the field to those who risk their lives on the battlefield. FH-3 went to Iraq with 166 trucking containers filled with more than $12 million in medical equipment and supplies.

**CAPT Robert Darling, MC, USN,** is currently the **Director, Navy Medicine Office of Homeland Security**. "Fighting terrorism is the single most important objective to ensure our national defense, and we need our very best talent dedicated to the cause. CAPT Rob Darling is our most highly qualified expert and will guide us well" (from remarks by Rear Admiral Donald C. Arthur, Deputy Surgeon General of the Navy and Chief of the Medical Corps). During 1996, when the White House was looking for a new White House Physician, a post generally filled by internists, surgeons, or family physicians, CAPT Darling was the first Emergency Physician to be selected for the assignment. While at the White House, CAPT Darling assisted the Secret Service to better understand the threat of a biological attack from a medical perspective.

**Colonel Loren Erickson, MC, USA**, serves as the **Commander of the United States Army Center for Health Promotion and Preventive Medicine-Europe.**

**Colonel Bryan Funke, USAF, MC**, is the **Commander of the 35th Medical Group, Misawa Air Base, Japan;** he is also serving as the **Central Air Forces Forward Surgeon in the Middle East**.

**CAPT Noreen Hynes, M.D., USPHS,** is currently working with the Food and Drug Administration on bioterrorism issues. CAPT Hynes' expertise is in international health, microbes of global and terrorism significance, and associated vaccine development.

**Colonel Doug Liening, MC, USA**, served as the **Commander for the 21st Combat Support Hospital in Iraq** during 2004; he was featured by the Wall Street Journal, *In a Tent Hospital*, on October 29, 2003, for his exceptional service; in addition, he was also featured by the London Times, *Move Over Mash - This Is Hi-Tech CASH*, on November 15, 2003. He returned from Operation Iraqi Freedom in late 2004.

**Colonel Shirley Lockie, USAF, MC,** retired from the Air Force in 2004; she served as the Chief of the Medical Staff at the 66th Medical Group, Hanscom Air Force Base, Massachusetts.

**CAPT Eric McDonald, MC, USN,** returned from an eight-month deployment to Fallujah, Iraq, in 2004. He is the **Force Surgeon for the 1st Marine Expeditionary Force** based at Camp Pendleton, California.

**CAPT Michael Moeller, MC, USN,** is the **Group Surgeon, 2D Force Service Support Group Forward, Al Taqaddum, Iraq**.

**Colonel Sean Murphy, USAF, MC,** serves as the **Command Surgeon for the United States Southern Command, at Miami, Florida.**

**Colonel Koji Nishimura, MC, USA,** is serving as the **Commander, Bassett Army Community Hospital, Fort Wainwright, Arkansas**.

**Colonel Don Richards, MC, USA,** serves as the **Commander of the 115th Field Hospital** based out of Fort Polk, Louisiana; his unit was deployed to Iraq, during 2004.

**Commander Tom Snead, MC, USN,** serves as the **Officer-in-Charge of the Branch Medical Clinic at the Naval Base, Ingleside, Texas.**

**Colonel Don Speers, MC, USA,** serves as the **Commander of the Patterson Army Community Hospital at Fort Monmouth, New Jersey**.

**Colonel Harry Stinger, MC, USA,** served as the **Commander of the 250th Forward Surgical Team in Iraq,** during 2004. He is now a faculty member in the USU Department of Surgery.

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**Class of 1986.**

**Colonel Kory Cornum, USAF, MC,** served as the **Commander of the Medical Operations Squadron at Ramstein Air Base, Germany**. He is currently the Commander, 1st Medical Group, Langley Air Force Base, Virginia.

**Colonel Rhonda Cornum, MC, USA**, served as the **Commander of the Landstuhl Regional Medical Center in Landstuhl, Germany**; this medical center is the largest United States Medical Treatment Facility in Europe. She recently transferred to Fort McPherson, Georgia, where **she is serving as the United State Forces Command (FORSCOM) Surgeon**.

**Colonel John V. Ingari, MC, USAF,** is serving as the **Orthopaedic Program Director at the Tripler Army Medical Center in Honolulu, Hawaii.**

**Colonel Alan Janusziewicz, MC, USA,** is the **Command Surgeon, United States Army Materiel Command, Fort Belvoir, Virginia**.

**Colonel Andrew Satin, USAF, MC**, following a national search, was selected to serve as the **Chair of the USU SOM Department of Obstetrics and Gynecology,** effective September 8, 2003. Previously, he served as the Director of the Uniformed Services Residency in Obstetrics and Gynecology and as the Vice Chair of the USU SOM Department of Obstetrics and Gynecology. Under Colonel Satin's leadership, the residency program was granted the maximum five-year accreditation by the Obstetrics and Gynecology (OBG) Residency Review Committee of the Accreditation Council for Graduate Medical Education. The residency program is the first in OBG to move from provisional status as a newly integrated program directly to the maximum accreditation of five years. Of the more than 250 OBG residency programs in the United States, only nine have achieved the five-year maximum accreditation.

**Colonel Steven Swann, MC, USA,** is currently serving as the **Commander, 30th Medical Brigade, Germany**. He was previously assigned as the Commander, Baynes Jones Army Community Hospital, Fort Polk, Louisiana.

**Brigadier General Thomas Travis, USAF, MC,** is serving as the **Commander of the 311th Human Systems Wing at Brooks City-Base, Texas**. BG Travis is the fourth USU alumnus to achieve flag

rank behind Brigadier General William Germann, USAF, MC, USU SOM Class of 1982; Brigadier General G William Fox, MC, USA, USU SOM Class of 1981; and, Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981. He will replace Brigadier General Bill Germann as the Commander of the Malcolm Grow United States Air Force Medical Center at Andrews Air Force Base, Maryland, in September of 2005.

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**Class of 1987.**

**Colonel William Davis, MC, USA,** is serving as the **Commander, Munson Army Health Center, Fort Leavenworth, Kansas**.

**CAPT Tom Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry**, was in charge of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team helping out at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001. The team provided supportive services to 2,000 active duty and civilian employees on the Navy staff. CAPT Grieger continues to provide significant support as a **senior member of the USU Center for the Study of Traumatic Stress** in the USU SOM Department of Psychiatry.

**Colonel Byron Hepburn, USAF, MC,** served as the Command Surgeon of the United States European Command in Stuttgart, Germany; he is currently the **Commander, David Grant United States Air Force Medical Center, Travis Air Force Base, California**.

**Colonel Dallas Homas, MC, USA,** board certified in General Surgery, Plastic Surgery, and Hand Surgery, served in Afghanistan as part of Operation Enduring Freedom, during 2004, as the **Combined Joint Task Force-76 Command Surgeon**. He currently serves as the **Commander, United States Army Hospital, Wurzburg, Germany**.

**Colonel Timothy Jex, USAF, MC,** is serving as the **United States Central Air Force (USCENTAF) Command Surgeon, based at Shaw Air Force Base, South Carolina**. Colonel Jex is responsible for the medical planning at USCENTAF. He also manages medical war readiness materials for the USCENTAF, provides supervision, establishes policy, works logistics issues for all of the deployed medical units, handles all medical issues for the Central Air Force Combat Command, and generally provides leadership for all of the deployed medical personnel.

**Colonel William Lang, MC, USA,** serves in the **White House Medical Unit**; this is his second tour of duty on the Presidential Medical Staff.

**Lieutenant Colonel Edward Lucci, MC, USA**, is the **Chief of Emergency and Operational Medicine at the Walter Reed Army Medical Center (WRAMC)**. On staff at WRAMC since 1997, Lucci serves as the hospital's team leader for the special response team for chemical and biological events.

**Lieutenant Colonel Paul Mongan, MC, USA**, is serving as the **Chair of the USU SOM Department of Anesthesiology**. *He is the first medical school alumnus to become a Chair of a clinical*

*department at the University.* Lieutenant Colonel Mongan has been an Anesthesiology faculty member since 1997, serving as Director of Research and Associate Professor, and for four years as Vice Chair.

**Colonel John Powell, MC, USA,** is currently serving as the **Deputy Command Surgeon for the United States Northern Command (NORTHCOM),** at Peterson Air Force Base, Colorado.

**Colonel Patrick St. Pierre, MC, USA,** was chosen, during 2003, for a medical exchange fellowship program. **Colonel St. Pierre, Assistant-Chief of Orthopaedic Surgery at the DeWitt Army Hospital at Fort Belvoir, Virginia,** is the first military physician selected as winner of the 2003 American Shoulder and Elbow Surgeon's (ASES) Traveling Fellow Post. The ASES is a society of leading national and international orthopaedic surgeons specializing in surgery of the shoulder and elbow. The society is an educational body responsible for the development of scientific programs, for the organization of current knowledge, for the standardization of nomenclature, and for the publication of scientific materials. Each year, the ASES, along with their international counterparts, alternate choosing two Fellows to travel to their respective continents to confer with shoulder specialists and other Fellows. Colonel St. Pierre will make about 10 to 15 visits in countries such as Italy, Denmark, Germany, Switzerland, and France; he will participate in an average of three to five sessions at each location. Colonel St. Pierre's research has won awards from the Eastern Orthopaedic Association, the Walter Reed Army Institute of Research, the Society of Military Orthopaedic Surgeons, the Arthroscopy Association of North America, and the American Orthopaedic Society for Sports Medicine.

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**Class of 1988.**

**Colonel John Cho, MC, USA,** is serving as the **Commander, Evans Army Community Hospital, Fort Carson, Colorado**.

**Lieutenant Colonel Michael C. Edwards, USAF, MC, FACS**, held dual positions as **Chief of Surgical Services and Chief of the Professional Staff at the 99th Medical Group, Mike O'Callaghan Federal Hospital, Nellis Air Force Base, Nevada**, during 2004.

**CAPT Anderson Funke, M.D., USPHS (Ret.),** served as the **Medical Director of the Carolina Health Centers in Greenwood, South Carolina,** during 2004.

**Lieutenant Colonel Roman Hayda, MC, USA,** served as an **Orthopaedic Trauma Surgeon at the Brooke Army Medical Center,** during 2004; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, on December 3, 2003, for his service caring for soldiers injured in Iraq.

**Colonel Lewis Hofmann, USAF, MC,** is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

**Lieutenant Colonel Lester "Andy" Huff, USAF, MC,** is serving as the **Command Surgeon, 1st Air Force, Tyndall Air Force Base, Florida.**

**CAPT David Tam, MC, USN,** a Pediatric Neurologist, was selected to serve as the **Deputy Commander for the Naval Medical Center in San Diego, California,** in July of 2005.

**Colonel Peter Torok, MC, USA,** is serving as the **Commander, Keller Army Community Hospital, West Point, New York.**

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**Class of 1989.**

**Colonel John Baxter, USAF (Ret.), MC**, continues to serve as the **Director, Pentagon Flight Medicine Clinic,** following his retirement in 2004; **he also serves as the physician to the Secretary of Defense**. Several months prior to the terrorist attack, Colonel Baxter's clinic had conducted mass casualty training exercises in conjunction with the Pentagon DiLorenzo Clinic. The exercise simulated a plane crashing into the building; on September 11th, members of both health care facilities agreed that the simulated training had proven to be invaluable.

**Lieutenant Colonel Aldo Domenichini, MC, USAF,** is currently assigned to the Family Medicine Department at the Air Force Hospital, Eglin Air Force Base, Florida.

**Two Members of the USU SOM Class of 1989, Lieutenant Colonel Duane Cespedes, USAF, MC,** and **Lieutenant Colonel David Ririe, USAF, MC,** assigned to the Wilford Hall United States Air Force Medical Center at Lackland Air Force Base, Texas, during 2004, are playing a significant role in the battle against prostate cancer. In an article produced by the 59th Medical Wing Public Affairs Office, Lieutenant Colonels Cespedes and Ririe were cited as instrumental members of a team of researchers who were involved in a highly publicized, landmark study on the drug, Finasteride's (Proscar) ability to prevent prostate cancer. According to the article, Wilford Hall was the largest site, providing roughly 10 percent of the participant population, for this extensive seven-year nation-wide study, named the Prostate Cancer Prevention Trial. The trail has found a 25 percent reduction in prostate cancer occurrences for healthy males taking the drug. Findings were published in the July 17, 2003 edition of The New England Journal of Medicine.

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**Class of 1990.**

**Lieutenant Colonel Kirk Eggleston, MC, USA,** served as the **Division Surgeon for the 4th Infantry Division (mechanized) in Iraq,** during 2004.

**Lieutenant Colonel Bill Flynn, USAF, MC,** serves as the **Ophthalmology Residency Program Director at the Wilford Hall United States Air Force Medical Center, Lackland Air Force Base, Texas,** during 2004; he was featured by the 409th Air Expeditionary Group Public Affairs Office, on September 17, 2003, for his efforts in a multi-national humanitarian assistance exercise, which took place in the Republic of Georgia.

**Lieutenant Colonel Spencer J. Frink, USAF, MC,** recently completed his Fellowship in Orthopaedic Oncology at the M.D. Anderson Cancer Center and is **one of only two Orthopaedic**

**Oncologists in the Air Force**. He is assigned at the Wilford Hall Medical Center at Lackland Air Force Base, Texas.

**Lieutenant Colonel John McGrath, MC, USA,** served as the **Division Surgeon for the 1st Armored Division in Iraq,** during 2004. He is currently the **Commander of the United States Army Health Clinic, in Wiesbaden, Germany**.

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**Class of 1991.**

**Commander Kevin K. Bach, MC, USN,** served as the **Command Intern Advisor in the Department of Otolaryngology at the Naval Medical Center in San Diego, California,** during 2004.

**Commander Katy Ciacco-Palatianos, M.D., USPHS,** holds an increasingly important headquarters position as the Principal Risk Management Consultant. **She represents the Indian Health Service (IHS) at Health and Human Services (HHS) and at interdepartmental meetings involving quality of care, patient safety, and workforce safety and health.** She is currently representing the IHS on the USPHS Physician PAC and a variety of departmental functions. She served as the Chair of the Medical Claims Quality Review Panel for HHS for six years and worked closely with the Office of the General Counsel and Department of Justice attorneys in analyzing and defending claims of negligence at Federal facilities and their providers; she also serves as a Member of the USPHS Commissioned Corps Award Branch.

**Commander David Lane, MC, USN,** serves as the **Group Surgeon for the Third Force Service Support Group, Okinawa, Japan**.

**CAPT Karen Parko, M.D., USPHS,** was one of only 18 PHS Commissioned Corps officers selected for an Exceptional Capability Promotion. She assumed the rank of Captain (0-6) on July 1, 2002. CAPT Parko, due to her assignment as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare during 2003. She transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the **Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service**.

**Lieutenant Colonel Paul Pasquina, MC, USA**, served as the **Program Director for the Physical Medicine and Rehabilitation Residency at the Walter Reed Army Medical Center,** during 2004. As Program Director, Lieutenant Colonel Pasquina led the department through a successful residency review by the Accreditation Council for Graduate Medical Education (ACGME).

**Lieutenant Colonel Mike Place, MC, USA,** served as the **Division Surgeon for the 101st Airborne Division in Iraq,** during 2004.

**Colonel William Rice, MC, USA**, is serving as the **Commander, Kirk United States Army Health Clinic, Aberdeen Proving Ground, Maryland.**

**Commander Jay Scheiner, MC, USN,** is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

**Commander S. Scott Sherman, MC, USN,** is serving as the **Group Surgeon, 1st Force Service Support Group, Camp Pendleton, California**.

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**Class of 1992.**

**Lieutenant Colonel Chester "Trip" Buckenmaier, MC, USA,** was featured in the Army Times, *Pain Blocker - Regional Anesthesia Demonstrates Promises for Treating Combat Wounds*, in April of 2004. Lieutenant Colonel Buckenmaier, **Chief of the Regional Anesthesia and Pain Management Initiative at the Walter Reed Army Medical Center,** is researching the use of regional anesthesia as an alternative to the traditional battlefield pain stopper, morphine; he was also featured in the London Times, *Move Over MASH - This Is High-Tech CASH*, on November 15, 2003.

**Commander Noel Delmundo, M.D., USPHS,** was assigned as a **Staff Member in the Obstetrics and Gynecology Department at the Phoenix Indian Medical Center in Arizona,** during 2004.

**Lieutenant Colonel Erin Edgar, MC, USA,** continued the trend of USU alumni serving in operational positions, when he served as the **Division Surgeon for the 82nd Airborne Division at Fort Bragg, North Carolina,** during 2004. Lieutenant Colonel Edgar has been twice promoted below zone; he is currently serving as the **Commander, Academy Battalion, United States Army Medical Center and School, Fort Sam Houston, Texas**.

**Lieutenant Colonel Blake Graham, MC, USA,** served as the **Regimental Surgeon for the 3rd Armored Cavalry Regiment in Iraq,** during 2004.

**Lieutenant Colonel Nelson Hager, MC, USA,** serves as the **Chief of the Physical Medicine and Rehabilitation Service at the Walter Reed Army Medical Center, in Washington, D.C.**

**Lieutenant Colonel Mark Koeniger, USAF, MC,** recipient of the Malcolm Grow Award for Air Force Flight Surgeon of the Year in 1998, served as the Commander of the 86th Aeromedical Squadron at the Ramstein Air Base in Germany, during 2003. He was selected to serve as a **Staff Member at the Industrial College of the Armed Forces (ICAF),** during 2004.

**Lieutenant Colonel Kelly Murray, MC, USA,** served as the **Regimental Surgeon for the 2nd Armored Cavalry Regiment in Iraq,** during 2004.

**Lieutenant Commander John Newman, MC, USN,** assigned to the USS Iwo Jima, was featured in the New York Times, *Medical Teams Fight Outbreak of Malaria Among Marines*, on September 16, 2003; the USU Parasitology and Tropical Medicine Courses, attended by Lieutenant Commander Newman, are referenced as the article explains how **the outbreak was diagnosed by Lieutenant Commander Newman**.

**Lieutenant Colonel Dan Parks, MC, USA,** is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

**Commander Mary Porvaznik, M.D., USPHS,** served as the **Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004. She supervised a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also ran a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba City, Arizona; her father was a physician who also served the Native American population. Commander Porvaznik's father, who completed 30 years in the Public Health Service and retired as an Assistant Surgeon General and Rear Admiral, suggested that she apply to USU. ***Commander Porvaznik reported that the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful***.

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**Class of 1993.**

**Lieutenant Commander Tanis Batsel, MC, USN,** who also earned a Master Degree in Public Health from USU in 2000, is now assigned as the **Chief of the Preventive Medicine Branch for the United States Northern Command (NORTHCOM) and the North American Aerospace Defense Command (NORAD),** at Peterson Air Force Base, Colorado.

**Commander Kimberly (Clancy) Brownell, M.D., USPHS,** served as a **Staff Pediatrician at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004.

**Major Brian Crownover, USAF, MC,** was featured on the Air Force News Link, *Balad* (Iraq) *Medics Aid Villagers*, on January 7, 2004; he recently returned from serving as the **Chief of Clinical Services for the 332nd Expeditionary Medical Squadron, Detachment 1, in Balad, Iraq**.

**Commander Jeffrey Curtis, M.D., USPHS,** is a **Staff Physician in the Medicine/Family Practice Department at the Phoenix Indian Medical Center, in Arizona**.

**Lieutenant Colonel Jim Czarnik, MC, USA,** a board certified Emergency Physician assigned to Fort Bragg, North Carolina, served in Afghanistan as part of Operation Enduring Freedom, during 2004, as the **Combined Joint Special Operations Task Force-Afghanistan Surgeon**.

**Lieutenant Colonel Marie Dominguez, MC, USA,** served as the **Commander of the United States Army Health Clinic at Darmstadt, Germany,** during 2004.

**Major Kerry Jepsen, USAF, MC,** an Orthopaedic Surgeon at Landstuhl Regional Medical Center, Germany, cares for injured troops from Iraq and Afghanistan.

**Lieutenant Colonel James Liffrig, MC, USA,** serves as the **Division Surgeon, 24th Infantry Division, Fort Riley, Kansas**.

**Lieutenant Colonel Jose Ortiz, MC, USA,** is the **Command Surgeon, United States Army Operations Support Command, Rock Island Arsenal, Illinois.**

**Major George Patterson, MC, USA,** is the **Chief of the Community Care Center at the Eisenhower Army Medical Center, Fort Gordon, Georgia**.

**Major Grant Tibbetts, USAF, MC,** was assigned as the **Chief of Special Imaging at the 3rd Medical Group, Elmendorf Air Force Base, Alaska,** during 2004.

**Lieutenant Colonel Richard Trotta, MC, USA,** is assigned as the **Southern European Task Force Surgeon, NATO**; he is currently serving in Afghanistan.

**Commander Brent Warren, USPHS, M.D.,** is an **Ophthalmologist and an Assistant Professor of Surgery at USU**. He helped to establish the state-of-the-art Refractive Eye Surgery Clinic at the Walter Reed Army Medical Center in Washington, D.C., and has performed hundreds of laser vision corrective surgeries on soldiers identified for combat.

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**Class of 1994.**

**Lieutenant Colonel David Barber, MC, USA,** currently serving in Afghanistan, was featured in an article in the Washington Times, *Sick Afghan Boy on Way to US for Vital Operation*, on June 13, 2005.

**Lieutenant Commander Ronald Boucher, MC, USN,** is assigned to the Naval Medical Center in San Diego, California, where he works as a Musculo-Skeletal Radiologist.

**Major Richard Gullick, MC, USA,** is a **Neurosurgeon based at the Brooke Army Medical Center; he was deployed to Iraq as part of the 31st Combat Support Hospital** and was featured in The Washington Post, *Lasting Wounds of War - Roadside Bombs Have Devastated Troops*, on April 27, 2004.

**Major Thomas Herold, MC, USA,** completed his residency in **Emergency Medicine** and is now a Staff Member at the Darnall Army Community Hospital, Fort Hood, Texas.

**Lieutenant Commander Staci (Valenzuela) Kelley, MC, USN,** served as the **Head of the Inpatient Mental Health Division of the Naval Hospital located at Great Lakes, Illinois**, during 2004.

**Lieutenant Commander David P. Murphy, MC, USN, Head of the Pulmonary/Critical Care Unit, United States Naval Hospital Okinawa**, received the Sparks Award for Excellence at the Navy Chapter's annual meeting in Washington, D.C., in November of 2003; this award recognizes him as the top internist in the Navy by the American College of Physicians, United States Navy Chapter.

**Major Donovan Tapper, USAF, MC,** served as the **Chief of Surgical Specialties at the 6th Medical Group, MacDill Air Force Base, Florida**; he was deployed as part of the 332nd Expeditionary Medical Group at Tallil Air Base, Iraq, and was featured on the United States Air Force News Link, *Medical Team Helps Accident Victims*, on January 12, 2004.

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**Class of 1995.**

**Major Jeffrey Blue, MC, USA,** completed his **Emergency Medicine** Residency at the Brooke Army Medical Center and is now assigned as the **Group Surgeon, 7th Special Forces, Fort Bragg, North Carolina**.

**Commander Christine Casey, M.D., USPHS,** is now serving as an **Epidemiologist for the Centers for Disease Control and Prevention** and works in the National Immunization Program, which has a leading role in bioterrorism surveillance/prevention.

**Major Scott Earwood, MC, USA,** was based out of Fort Bragg, North Carolina, and deployed to Iraq; he was featured by the Washington Post, *Soldiers Say They Remain Committed*, on November 3, 2003.

**Major Michael Koteles, USAF, MC,** was named the **United States Air Force Clinical Excellence Field Grade Officer of the Year** by the Air Force Surgeon General, during 2004. Major Koteles is assigned to the 99th Medical Group, Nellis Air Force Base, Nevada, as the **Element Chief of the Medicine Department**.

**Major Shean Phelps, MC, USA,** served as the **Battalion Surgeon for the 1st Special Forces Battalion, 1st Special Forces Group, Panzer Kaserne, in Boeblingen, Germany,** during 2004.

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**Class of 1996.**

**Captain Daniel Irizarry, MC, USA,** served as the **Regimental Surgeon for the 325th Airborne Infantry Regiment, 82nd Airborne Division, at Fort Bragg, North Carolina,** during 2004, with duty in Iraq.

**Major Gregory Kennebeck, USAF, MC,** was recently deployed to Iraq from his position as an **Instructor for the Army Medical Department's Physician Assistant School at Fort Sam Houston, Texas**.

**Lieutenant Commander John M. McCurley, MC, USN,** an internist, served as a Staff Physician in the Office of the Attending Physician on Capital Hill. He is now a **Cardiologist and USU Faculty Member**.

**Lieutenant Commander John Mohs, M.D., USPHS,** was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic,** during 2004. He was responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

**Lieutenant Commander Kimberly Mohs, M.D., USPHS,** was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Chief of Internal Medicine**, during 2004. As such, she provided oversight for a department of six internists who provide primary care as well as cardiology and

pulmonary related procedures and endoscopy. Her department also held a number of specialty clinics, including hypertension, tuberculosis, renal disease, gastroenterology, and a uranium miners' clinic, which she also supervised. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

**Major Edward Swanton, MC, USA,** is the **Chief of the Out-Patient Psychiatry Clinic and a Staff Internist at the Landstuhl Regional Medical Center, Germany**.

**Lieutenant Colonel Peter Weina, MC, USA,** was featured in the Kansas City Star website, *Rare Parasite Infection Afflicts U.S. Troops in Iraq*. Weina was sent to Iraq with the first wave of soldiers in 2003 to assess endemic disease threats; he is currently a leishmaniasis expert serving at the Walter Reed Army Institute of Research. In the past two years, hundreds of soldiers in Iraq have been afflicted with cutaneous leishmaniasis; a few have been afflicted with visceral leishmaniasis, which is accompanied by a persistent, unexplained fever, and is fatal if not treated.

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**Class of 1997.**

**Major Scott Brietzke, MC, USA,** was featured in the Edmonton (Alberta, Canada) Journal, *Snore No More with Procedure Developed by Military Doctors*, on April 5, 2004. Major Brietzke, assigned to the Walter Reed Army Medical Center in Washington, D.C., has been developing and refining snorplasty with his colleague, Doctor Eric Mair. More than 200 patients have been treated with injection snorplasty at the center; the new procedure takes about ten minutes and is only recommended for disruptive snoring.

**Major Kurt G. Kinney, MC, USA,** is currently a **Staff Cardiologist at the William Beaumont Army Medical Center, in El Paso, Texas.**

**Lieutenant Commander Susannah Q. Olnes, M.D., USPHS,** is a Pediatrician at the W.W. Hastings Indian Medical Center in Tahlequah, Oklahoma, where she designed and implemented a Diabetes Prevention Program for at-risk teens (Trim Native Teens - TNT).

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**Class of 1998.**

**Lieutenant Commander Ramiro Gutierrez, MC, USN,** is serving on the **Congressional Medical Team, Office of the Attending Physician to Congress, Washington, D.C.**

**Lieutenant Commander Robert Johnson, MC, USN,** served as a Flight Surgeon assigned to VAQ-133 and the Naval Hospital in Oak Harbor, Washington. He continued in an **Ophthalmology Residency at the Naval Medical Center in San Diego, California,** during 2004.

**Captain Jocelyn Kilgore, USAF, MC,** served as a **Staff Psychiatrist in Germany,** during 2004.

**Major Max Lee, USAF, MC,** is usually assigned to the Wilford Hall United States Air Force Medical Center in San Antonio, Texas; **currently assigned to an Expeditionary Medical Unit in Iraq**, he was featured by Fox News, during May of 2005, on a segment on combat wounded and the health care providers who are taking care of them.

**Lieutenant Commander David Lesser, MC, USN,** served as a **Flight Surgeon with the Navy Helicopter Squadron HSL-41 in San Diego, California,** during 2004.

**Lieutenant Commander Julia C. (Watkins) Meyers, M.D., USPHS,** is currently working at the Wichita County Health Center, in Leoti, Kansas.

**Lieutenant Commander Robert Perkins, MC, USN,** completed his **Undersea Medicine/ Occupational Medicine Residency** at Duke University, during 2004. He is now assigned to Submarine Group Nine, in Bangor, Washington.

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**Class of 1999.**

**Captain Karyn Ayers, USAF, MC,** a Family Physician, is attached to the **447th Expeditionary Medical Squadron at Abu Ghrab Prison, in Iraq.**

**Lieutenant John S. Brooks, MC, USN,** is the **Senior Medical Officer and Medical Director of Search and Rescue at the Naval Air Station, in Meridian, Mississippi**.

**Lieutenant Theresa L. Castro, MC, USN,** is in her fifth year of Orthopaedic Surgery Residency at the National Naval Medical Center, in Bethesda, Maryland.

**Major Robert Mabry, MC, USA,** is serving as the **Unit Surgeon with the Army Special Operations Forces, Afghanistan**.

**Lieutenant Colonel John Smyrski, MC, USA,** board certified in Family Medicine and based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, to Bagram Airfield, Afghanistan, as the **Joint Task Force Wings, Combined/Joint Task Force 76 Flight Surgeon**.

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**Class of 2000.**

**Captain Jennifer Bager, MC, USA,** a resident at the Tripler Army Medical Center in Hawaii, was **among the six highest scores in the Nation on the Otolaryngology In-Service Examination**, during 2003.

**Captain Daniel Carlson, MC, USA,** finished his Medicine Residency at the Tripler Army Medical Center in Hawaii, during 2004. He transferred to Wurzburg, Germany, and was **deployed with the 1st Infantry Division to Balad, Iraq, where he served in C Co., 299th Forward Support Battalion**.

**Major Mark Carmichael, MC, USA,** is currently serving as the **Chief Medicine Resident at the William Beaumont Army Medical Center, in El Paso, Texas.**

**Lieutenant Commander Todd Gardner, MC, USN,** is now assigned as the **Flight Surgeon to HMX-1, the President's Helicopter Squadron, at Quantico, Virginia.**

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**Class of 2001.**

**Captain Shannon D. Faber, USAF, MC,** completed her Emergency Medicine Residency at the Wilford Hall Medical Center, during 2004. She is now working in the Emergency Department at the Eglin Air Force Base Hospital, Florida.

**Captain Nicole Powell-Dunford, MC, USA,** based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, as a **Flight Surgeon to the 2nd Battalion, 25th Aviation Regiment and is serving as the Task Force Diamondhead Flight Surgeon at Kandahar Airfield, in Afghanistan.**

**Captain Tina Kinsley, USAF, MC,** left her position as a Flight Surgeon assigned to the 51st Medical Group, Osan Air Base, Korea, during 2004, to begin a Dermatology Residency at the Wilford Hall Medical Center, Lackland Air Force Base, Texas.

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**Class of 2002.**

**Major Mike Anderson, MC, USA,** based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, as a **Flight Surgeon to the 3rd Squadron, 4th Cavalry Regiment at Kandahar Airfield, in Afghanistan**.

**Lieutenant Miguel Gutierrez, MC, USN,** is assigned as a **Division Medical Officer with the Explosive Ordnance Disposal Mobile Unit-4**, **in Bahrain.**

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**Selected Profiles of USU School of Medicine Graduates.**

**Army.**

**Major Christopher Lange, MC, USA, USU SOM Class of 1997,** based at Fort Hood, Texas, **received a purple heart, during 2004, for injuries sustained from a mortar attack while serving as the Division Psychiatrist for the 1st Cavalry Division, in Iraq. Major Lange is the second USU alumnus to be injured in combat**, after Colonel Rhonda Cornum, MC, USA, USU SOM Class of 1986.

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**Captain William Daniel Porter, MC, USA, USU SOM Class of 2001, 1st Cavalry Division Surgical Section** (*recently returned from Iraq and featured in two articles in his home town newspaper in Linton, Indiana*).

**There aren't many doctors from eastern Green County, according to Nelda Porter, so she and her husband Bernard are proud to say their son, Dan is an Army physician... Nelda is a teachers' aide at Eastern Elementary School and Bernard is a heat mechanic at Indiana University... Known simply as "Dan" to his parents, Captain William Daniel Porter, 1st Cavalry Division Surgical Section, graduated from Eastern Greene High School, in 1990. According to his mom, Porter attended Indiana University (IU) after his high school graduation and earned a Bachelor's Degree in Chemistry. Because he had been in the Reserve Officers Training Corps (ROTC) at IU, he had a four-year commitment to the Army after graduation. Three years into that, he got into medical school.**

**Porter didn't become seriously interested in pursuing a career in medicine until he was in the Army and serving at Fort Riley, Kansas. His first job involved a great deal of interaction with the physicians in his unit. After watching them in action, he decided that he wanted to continue his education. He studied for the Medical College Admission Test (MCAT) and then applied to several schools. He considered himself to be lucky to be accepted to USUHS (Uniformed Services University of the Health Sciences), in 1997.**

**He first became interested in the Army while he was an undergraduate student at Indiana University. He liked the idea of having a guaranteed job when he graduated. And, he found that the benefit package for a new officer straight out of college is pretty hard to beat... pay, medical care, leave, etc. He participated in the Reserve Officers Training Corps and was commissioned as a 2nd Lieutenant, in 1994. He had originally planned to serve a few years, enjoy some travel, and then come back to Indiana and settle down. But his plans changed when he worked with those Army physicians. As part of his education at USUHS, which is located on the campus of the National Naval Medical Center in Bethesda, Maryland, Porter traveled and worked in military and civilian hospitals and clinics throughout the United States, including stints in Hawaii, Texas, Ohio, Maryland, Georgia, Indiana, and Washington, D.C. After completing four years of medical school, the Army provided one year of training in clinical practice at Fort Gordon, Georgia, seeing outpatients on a daily basis, assisting at surgery, and caring for inpatients who were admitted to the hospital... He spent one year at**

**the Walter Reed Army Institute of Research in Silver Spring, Maryland, where he assisted in the investigation of an outbreak of malaria in a group of soldiers who had deployed to Afghanistan. He also traveled to Thailand and participated in a research study regarding traveler's diarrhea. And, he was involved in the collection of clinical and demographic data from patients returning from Iraq with cutaneous leishmaniasis, a skin disorder transmitted by infected sand flies.**

**The 33-year-old Captain explained that USUHS is a fully accredited medical school operated by the Department of Defense. The curriculum includes all of the standard medical subjects, such as anatomy, biochemistry and physiology. In addition, students at USUHS receive training in other disciplines that directly impact military readiness or contingency operations. Examples include tropical medicine; the physiology of extreme environments, such as desert, space and supersonic flight; disaster relief; and, humanitarian operations. Porter explained that these experiences have given him the necessary skills to improve the health and safety of our military forces while deployed overseas or in the United States. He is currently board certified to practice public health and general preventive medicine.**

**From mid-August of 2004 until early March of 2005, Captain Porter practiced in Baghdad, Iraq, while his wife, Laura; 8-year-old son, Will; 5-year-old daughter, Lilly; parents and others prayed for his safe return... Porter lived at Camp Liberty, a large compound on the west side of Baghdad, near the Baghdad International Airport. His job was to collect information and health-related data for over 28,000 coalition soldiers who were located at numerous camps throughout the city. He was also responsible for providing advice to other medical officers and commanders about public health issues in Baghdad. He spent some time each day seeing individual patients who were suffering from minor injuries or illnesses in a small clinic on the compound... His compound in Baghdad received rocket and mortar fire on a pretty regular basis. It was also not uncommon to hear explosions from insurgent attacks around the camp. Captain Porter explained that when those things happened, they relied on procedures to make sure everyone was accounted for, that all were in the proper uniform of protective gear... flak vest, helmet, and eye protection... and, then they went on with their duties. Naturally, hearing those rounds whistling overhead or seeing the smoke rise from a recent explosion was frightening, but you could not let fear overtake you. You had to focus on the training that you had received and continue to do your job.**

- **Andrea McCann, Staff Writer,** *Doctor Credits Area Mentors with his Success*, Linton Daily Citizen, 2005.

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**Navy.**

**Commander Michael Jacobs, MC, USN, USU SOM Class of 1989,** was featured in an article, *Surgeon Tackles Station Ailments*, in Marines Online, during March of 2005.

**MARINE CORPS AIR STATION IWAKUNI, Japan (March 25, 2005). Commander Michael M. Jacobs is the Group Surgeon, Branch Health Clinic, Marine Aircraft Group 12. The former Ivy League defensive back from Harvard University no longer tackles wide receivers, but takes on all injuries and ailments of Station residents. The 45-year-old father of two graduated from Harvard University, in 1981, with a Bachelor Degree in History. Dominating the Ivy League as a defensive back and quarterback for the Crimson all four years in which he attended the prestigious school, Jacobs decided to try out for a professional team in 1982, the Cincinnati Bengals... Although his career in the pros was short lived, during his one pre-season with the Bengals, his defensive presence was felt by at least one of the Bengal's opponents, when he caught a game winning interception against the Denver Broncos. After some time in the pros and the Canadian Football League, Jacobs felt the draw of a higher calling... He started to get a lot more interested in human anatomy and how everything works... by the 9th grade, he had already started to take a lot more science courses... He knew he wanted to go to medical school... his father was a Marine Corps Captain and a former National Football League tight end. After graduating and experimenting in professional football, Jacobs decided to make his childhood dreams of becoming a doctor a reality.**

**He attended another esteemed school, the Uniformed Services University of the Health Sciences, in Bethesda, Maryland, which only admits 165 students per year to its grueling program. All students sign contracts with the Navy, Army, or Air Force before being admitted. Among the biggest benefits USUHS offers to prospective students is a tuition-free, first-rate education; the only thing asked of the students in return is seven years in their respective Service upon completion of the program.**

**"Going to USUHS was such an awesome opportunity," said Jacobs. "I am very thankful to the American taxpayers for this unique opportunity." After graduating from USUHS and completing the time-consuming residency process, Jacobs began fulfilling his dream by treating Marines and Sailors.**

**"Being a military physician, I am allowed to treat people without all of the business people around to keep constraints on what or who I can treat. I don't have to worry about HMOs or making money for the clinic, all I have to worry about is getting the right treatment for my patients... I can't imagine doing anything else... This is a tour I saw as a great opportunity to enrich my family life. I take great pride in the fact that my family plays together and prays together. We have so many opportunities here."**

\- **Lance Corporal Lukas J. Blom,** *Surgeon Tackles Station Ailments*, Marines Online, March 25, 2005.

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**Air Force.**

**Major Joseph A. Pocreva, USAF, MC, USU SOM Class of 1996,** was featured in *Graduate's Actions Played Part in Capture of Hussein*, USU Medicine, Winter 2004, page 27.

**Despite daily headlines from Iraq outlining deadly terrorist attacks and frustrated American efforts to rebuild both the infrastructure and the morale of the region, a USU alumnus played a hand in the capture of Saddam Hussein. Major Joseph A Pocreva, USAF, MC, who graduated from USU in 1996, was serving as a surgeon for an Air Force Expeditionary Medical Squadron in Iraq. He performed emergency surgery at Kirkuk Air Base on an Iraqi civilian who had been involved in an automobile accident that left one man dead at the scene and two others with life-threatening injuries. Pocreva performed the emergency surgery while doctors from an Army Forward Surgical Team operated on the others. His patient had a large injury on his chest as the result of having collided with the steering wheel of the minivan he was driving. The man's breathing was labored and his right leg was grossly swollen. A chest tube was inserted to ease his breathing and doctors determined that his knee was fractured into about five pieces.**

**Surgery lasted for four hours, since the surgeons did not have the medical equipment normally used in such a procedure. Eventually, the patient, along with another who had less severe injuries, were stabilized and transferred to a civilian hospital to convalesce. Several aspects of Iraqi culture played major roles in what happened next. Despite the American surgeons' frustration with the surgery and the feeling that they had been inadequately equipped to treat such severe injuries, it turns out that the care they provided for the patient far exceeded what he would have received under the Iraqi medical system. First, expenditures on health care in Iraq under Saddam Hussein's regime amounted to about a dollar per person. Second, and perhaps more importantly, Iraqi culture dictates that if a doctor treats a patient who ultimately dies, the family holds the doctor responsible for the death. Consequently, Iraqi doctors routinely neglected to treat critically-injured patients for lack of sufficient equipment and supplies and the fear of reprisals from the patients' families. The two patients treated by the Expeditionary Medical Squadron returned home, to the delight of their families, who had assumed them to be dead.**

**The families were, in fact, so grateful for the medical care that they gave information to Army intelligence that contributed to Saddam Hussein's capture. Major Pocreva and the rest of his squadron were cited for their involvement. There was a fundamental shift in opinion in the patient's family and that community because of the treatment provided by Major Pocreva. His role in Hussein's capture gave Major Pocreva satisfaction in a decidedly uncomfortable environment. In his own words, "So many of us came to Iraq with the hopes of making a difference. We quickly realized that life in Iraq is not flashy, romantic, or least of all comfortable. We spend our days getting ready for terrible things we hope never happen. We take care of people with everyday aches, sniffles, colds, cuts, and loneliness. We trudge through the mud and wind to get chow which isn't that great. We laugh at the humor we rely on as our drug of choice. We cherish the love of our families and friends who don't forget why we are here. We live day to day and frequently lose sight of the big picture. But sometimes something comes across your plate which gives you the chance to participate. I am thankful to be a part of the team which had a part in capturing Saddam Hussein."**

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**United States Public Health Service.**

**CAPT Sandra Kweder, M.D., USPHS, USU SOM Class of 1984, Associate Professor, USU SOM Department of Medicine,** serves as the **Deputy Director of the Food and Drug Administration's Office of New Drugs**. CAPT Kweder's previous assignments included serving as Deputy Director of the Office of Drug Evaluation IV, Co-Chair of FDA's Pregnancy Labeling Taskforce, Acting Director of the Office of Review Management, and Acting Director of the Office of Drug Evaluation II.

**CAPT Diane Mitchell, M.D., USPHS, USU SOM Class of 1984,** serves as the **Deputy Director for a large division at the Center for Devices and Radiological Health, Regulatory Affairs for Reproductive Devices, at the Food and Drug Administration**.

**CAPT Noreen Hynes, M.D., USPHS, USU SOM Class of 1985,** is currently working with the Food and Drug Administration on bioterrorism issues. CAPT Hynes' expertise is in international health, microbes of global and terrorism significance, and associated vaccine development.

**CAPT Anderson Funke, M.D., USPHS, USU SOM Class of 1988,** served as the **Medical Director of the Carolina Health Centers in Greenwood, South Carolina,** during 2004.

**Commander Katy Ciacco-Palatianos, M.D., USPHS, USU SOM Class of 1991,** holds an increasingly important headquarters position as the Principal Risk Management Consultant. **She represents the Indian Health Service (IHS) at Health and Human Services (HHS) and at interdepartmental meetings involving quality of care, patient safety, and workforce safety and health.** She is currently representing the IHS on the USPHS Physician PAC and a variety of departmental functions; she also serves as a Member of the USPHS Commissioned Corps Award Branch.

**CAPT Karen Parko, M.D., USPHS, USU SOM Class of 1991,** was one of only 18 PHS Commissioned Corps officers selected for an Exceptional Capability Promotion. She assumed the rank of Captain (0-6) on July 1, 2002. CAPT Parko, due to her assignment as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare, during 2003. She transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the **Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service**. ***CAPT Parko has pointed out that her experience at USU provided her with a good overview of medicine and how it can be applied in different settings; and, that the wide scope of medicine taught at the USU SOM has left her prepared to handle multiple medical situations outside of her specialty***.

**Commander Noel Delmundo, M.D., USPHS, USU SOM Class of 1992,** was assigned as a **Staff Member in the Obstetrics and Gynecology Department at the Phoenix Indian Medical Center in Arizona,** during 2004.

**Commander Mary Porvaznik, M.D., USPHS, USU SOM Class of 1992,** served as the **Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004. She supervised a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also ran a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba

City, Arizona; her father was a physician who also served the Native American population. ***Commander Porvaznik reported that she realizes the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful***.

**Commander Kimberly (Clancy) Brownell, M.D., USPHS, USU SOM Class of 1993,** served as a **Staff Pediatrician at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004.

**Commander Jeffrey Curtis, M.D., USPHS, USU SOM Class of 1993,** is a **Staff Physician in the Medicine/Family Practice Department at the Phoenix Indian Medical Center in Arizona**.

**Commander Brent Warren, USPHS, M.D., USU SOM Class of 1993,** is an **Ophthalmologist and an Assistant Professor of Surgery at USU**. He helped to establish the state-of-the-art Refractive Eye Surgery Clinic at the Walter Reed Army Medical Center in Washington, D.C., and has performed hundreds of laser vision corrective surgeries on soldiers identified for combat.

**Commander Christine Casey, M.D., USPHS, USU SOM Class of 1995,** is now serving as an **Epidemiologist for the Centers for Disease Control and Prevention** and works in the National Immunization Program, which has a leading role in bioterrorism surveillance and prevention.

**Lieutenant Commander John Mohs, M.D., USPHS, USU SOM Class of 1996,** was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic,** during 2004. He was responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

**Lieutenant Commander Kimberly Mohs, M.D., USPHS, USU SOM Class of 1996,** was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Chief of Internal Medicine**, during 2004. As such, she provided oversight for a department of six internists who provide primary care as well as cardiology and pulmonary related procedures and endoscopy. Her department also held a number of specialty clinics, including hypertension, tuberculosis, renal disease, gastroenterology, and a uranium miners' clinic, which she also supervised. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

**Lieutenant Commander Susannah Q. Olnes, M.D., USPHS, USU SOM Class of 1997,** is a Pediatrician at the W.W. Hastings Indian Medical Center in Tahlequah, Oklahoma, where she designed and implemented a Diabetes Prevention Program for at-risk teens (Trim Native Teens - TNT).

**Lieutenant Commander Julia C. (Watkins) Meyers, M.D., USPHS, USU SOM Class of 1998,** is currently working at the Wichita County Health Center in Leoti, Kansas.

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**FACULTY OF THE SCHOOL OF MEDICINE.**

**As President of the Association of American Medical Colleges, which represents the nation's 125 accredited medical schools as well as 400 major teaching hospitals and 90 academic and professional scientific societies, I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences...**

**Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic. Moreover, USUHS with its Center for Patient Safety can and will serve as a laboratory for this critical need for our entire profession.**

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

**Composition.** As of November 2004, the School of Medicine had 305 full time assigned faculty members: 195 civilians; and, 110 uniformed officers (*of note, in November of 2004, recruitment was underway for 11 faculty positions within the SOM*). There are approximately 3,928 non-billeted or off-campus faculty who assist in the USU programs of which 1,549 are civilians and 2,379 are uniformed officers.

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**SOM Clinical and Consultative Services Generate an Estimated $15,688,266 in Cost Avoidance for DoD in Fiscal Year 2004.** The affiliated Medical Treatment Facilities (MTFs) in the National Capital Region (the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Malcolm Grow Air Force Medical Center (MGMC) use the services of the USU faculty for the provision of health care.

The USU SOM civilian and military clinical faculty members, as a part of maintaining their credentials and level of proficiency, provide medical services and consultation to the hospital patients and staff and teach and supervise residents. In order to meet national accreditation standards, all teaching hospitals must provide both patient care and teaching/supervision of medical students, interns, and resident physicians. Cost avoidance for the Department of Defense (DoD) is generated by the hours of clinical service and medical expertise provided by the USU civilian and military faculty. Thirteen USU SOM academic departments (Anesthesiology, Dermatology, Family Medicine, Department of Medicine, Military and Emergency Medicine, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics, Preventive Medicine and Biometrics, Psychiatry, Radiology and Nuclear Medicine, and Surgery) provided clinical and consultative support to DoD that totalled some 142,748 hours in 2004, with an estimated cost avoidance of $15,688,266. Without the patient care and special services provided by the USU SOM faculty throughout the DoD medical facilities, the military hospitals, clinics, and other facilities would find it necessary to augment their medical staffs by 142,748 work hours in order to maintain the level of patient care within the direct care system. (***Note:*** *the total cost avoidance reported by USU for clinical care also included 4,553 hours of clinical services provided by the Graduate School of Nursing at a manpower cost of $406,641,*

*which resulted in the provision of an overall total of 147,301 hours of clinical services and generated a USU-wide manpower cost-avoidance for DoD of $16,094,907, during 2004.*)

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**USU SOM Faculty Achieve National and International Recognition.**

**This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself but for the Association of Academic Health Centers and for the leaders of our member academic health science centers. USUHS and its leaders have worked with others in the Association of Academic Health Centers to advance the development of organized distance learning techniques in health professional education, in bioterrorism defense, in the strategizing about global health and domestically about the systemic delivery of population-based health care and preventive services, in all of which areas USUHS is in a leadership position.**

- **Roger J. Bulger, M.D., President and CEO, Association of Academic Health Centers,** Letter to the Deputy Secretary of Defense, April 28, 2005.

**The USUHS SOM Graduate Education Programs in Public Health, with their emphasis on community health, rank sixth in the Nation according to U.S. News & World Report's *2004 Edition of America's Best Graduate Schools* on the list of the top 10 community health master or doctorate programs.**

- **The Honorable David S. Chu, Under Secretary of Defense, Personnel & Readiness,** Nomination Statement to Accompany the Award of the DoD Medal for Distinguished Civilian Service, Presented to the USU President, August 2, 2004.

The University trains physicians to practice state-of-the-art medicine under the most adverse conditions on the most critically ill and wounded patients. It also provides graduate training in public health and biomedical research to individuals committed to careers in health science. To do this, **the University provides education in the basic and clinical sciences that is highly recognized by the Nation's leading organizations in the health professions (i.e., the American Medical Association (AMA), the Association of American Medical Colleges (AAMC), the Association of Academic Health Centers (AHC), the Institute of Medicine (IOM)**, etc.,). In addition to the curricula found at the other 124 medical schools in the United States, USU also prepares its graduates to deal with situations unique to the practice of military medicine. **Such an education requires an exceptional and committed faculty whose performance and accomplishments allow them, and the institution they represent, to command the respect of their colleagues at civilian institutions.** USU must compete with other medical schools for these faculty; and, to retain them, it must provide its faculty with credible opportunities for professional recognition and

advancement. **By any of the objective criteria traditionally used to measure faculty performance, the faculty of USU demonstrate, on a continuing basis, that they are the equals of their colleagues at other medical schools; selected examples of their accomplishments include:**

- USU and its individual schools and programs continually receives **maximum accreditation** when reviewed by national organizations charged with program evaluation and accreditation;

- In 2004, seventy-five **USU faculty were the recipients of over $28M in investigator-initiated peer-reviewed funding**, the *sine quo non* of significant research;

- Faculty **publish extensively in high impact peer-reviewed journals**; and, their results are cited repeatedly by faculty at other institutions;

- Faculty are **invited to serve on advisory panels of public and private agencies, on the editorial boards of prestigious journals, and as officers of leading scientific societies**;

- A member of the **USU faculty leads one of ten state-of-the-art national proteomic centers funded by the National Heart Lung and Blood Institute** to study cystic fibrosis;

- USU faculty are **leading participants in a regional consortium of institutions funded by the National Institute of Allergy and Infectious Diseases to develop a Center of Excellence for Biodefense and Emerging Infectious Diseases**; and,

- In recognition of the expertise of its faculty, **USU has been designated by the American Type Culture Collection as the reference center for toxins recognized as select agents in bioterrorism**.

Overall, the SOM faculty has clearly achieved recognition with its peers across disciplines and specialties. Due to the unique nature of the USUHS SOM mission and certain of its departments, faculty in the Departments of Military and Emergency Medicine, Preventive Medicine and Biometrics, Psychiatry, and Medical History have achieved national and international recognition in the military unique practice of medicine (*Appendix C provides examples of individual achievements and recognition*).

> ***Essential Science Indicators*, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To even be listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). *For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences*. This ranking is based on the number of citations received by papers published by USU faculty in the period.**
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> - **Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center,** *Essential Science Indicators and USU*, February 17, 2004.

As USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the MHS, the majority of the SOM clinical faculty are located at the teaching hospitals. **The large number of enthusiastic, well-trained primary care and specialist clinicians, based at the hospitals throughout the Military Health System, is an invaluable resource for teaching medical students.** Under the oversight and guidance of clinical clerkship directors, this large faculty does an excellent job of medical student clinical training, based on surveys of both students and department chairs. To further enhance communication and cooperation between the USU SOM and its 22 affiliated teaching facilities, the Office of the Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are implemented. The ADA visits the major Military Medical Centers on a regular basis; reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; and, ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and the University. This process ensures that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, which has resulted in overall improved relationship between the SOM and its numerous clinical sites. A number of the hospital-based faculty are also involved in clinical research programs through the active clinical investigation programs based at the teaching hospitals.

**Outcome data** such as student-reported satisfaction, student performance on National Board examinations, hospital commanders' overall satisfaction with the performance of USU graduates, and the large percentage of operational and leadership positions held by USU graduates throughout the Military Health System, **indicate that the SOM faculty is performing a stable and highly satisfactory job of educating medical students for the Uniformed Services and the Nation**.

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**Collaborative Efforts.**

Teaching. Cooperation in teaching has been systematically developed within the departments, between departments, and within subspecialties, to improve the educational experience of both medical and graduate students (***the SOM faculty also provides the instructional base for the Graduate Education Programs at the University***). The composite curriculum in behavioral sciences, drawing on Neurology, Psychiatry, and Medical Psychology, is a significant example of interdepartmental cooperation in undergraduate medical education.

The graduate education programs in Neuroscience, Molecular and Cell Biology, and the Interdisciplinary Graduate Program in Emerging Infectious Diseases (EID) illustrate a sound cooperative relationship in research and graduate education (*Section IV of this report provides detailed descriptions of these Graduate Education Programs. For example, the EID Program leading to the Doctoral Degree offers courses on the agents and effects of bioterrorism; to date, this program is one of the only graduate programs in the Nation to offer formal training in this critical area*). The Tumor Biology Program, an interdepartmental effort between the Departments of Pathology and Surgery, serves as a bridge between basic science and clinical practice in Medical Oncology. The special interest groups in curriculum studies have resulted in basic science input into the hospitals, with collaboration in research, and more importantly, with collaboration in teaching, as the basic scientists provide science instruction to the medical house

officers and junior faculty within certain subspecialties of mutual interest. In addition, faculty members use electronic mail and computer bulletin boards quite extensively, which also enhances their collaborative efforts throughout the Military Health System.

The Department of Anatomy, Physiology and Genetics. A significant change took place over the past five years in the academic structure of the USU SOM. The Department of Anatomy and Cell Biology and the Department of Physiology were formally merged to create the Department of Anatomy, Physiology and Genetics (APG). The philosophy of the newly formed department conforms with the mission and goals of the USU Strategic Plan; it is based upon a commitment to the highest level of excellence in teaching, research, and administration. The departmental merger has consolidated the teaching, research, and administrative functions of a substantial component of the University within a single faculty group under the leadership of a single Department Chair. Integration of the formerly separate anatomy and physiology curricula is resulting in a comprehensive, cohesive and dynamic educational experience that spans the entire first year of medical education. As expected, the departmental merger is yielding benefits beyond the immediate outcomes of curriculum integration.

***A focus on Understanding Tissue and Organ Function within a Clinically Relevant Context.*** Physicians often cite Sinclair Lewis' Arrowsmith as an inspiration for entering medicine. As noted in the preface to the 2005, 39th Edition of Gray's Anatomy, Lewis saw Gray's (as well as the Bible and Shakespeare's works) as the core texts for a doctor's education. The faculty of APG provide the nation's next generation of physicians with a comprehensible, intellectually interesting, and integrated curriculum for understanding tissue and organ function within a clinically relevant context. The goal of APG is to integrate the information explosion resulting from the Human Genome Initiative and a myriad of cellular and molecular biological approaches, so that biomedicine explains how the human body functions as an integrated self-regulating system. The systems biology approach is seen as a means to further improve the information transfer process for the major responsibility of APG - the education of USU medical and graduate students. The Basic Anatomy and Physiology Courses have been integrated and are providing students with a comprehensive understanding of tissue and organ function. The APG faculty members oversee courses that extend for the entire first academic year; in fact, first-year medical students spend approximately 53 percent of their first year of medical education with APG faculty. APG has organized its basic instruction into three modules. ***Introduction to Structure and Function*** introduces the student to cell classification, organelle function, and cellular processes, followed by study of the gross anatomy of the human body. An emphasis is placed upon understanding anatomical relationships and the causes and functional consequences of anomalies arising from disease processes. Gross anatomical study of the head and neck region, neuroanatomy, and basic clinical neurology are taught in the second module, ***Clinical Head and Neck and Functional Neuroscience***. Clinical cases are presented and case studies are assigned to students to reinforce their understanding of neurological function. Then, the students return to cellular and subcellular analysis in the third module, ***Structure and Function of Organ Systems***. This module presents an integrated approach to understanding the functions of different cells and organ systems, which include: the functions of muscle; heart; endocrine systems; kidney; respiration; gastrointestinal physiology; hematology; and, reproduction. Again, basic principles are emphasized to underscore clinical relevance.

The educational programs of APG are overwhelmingly lauded by USUHS medical and graduate students. Its faculty are recipients of many awards, including the SOM's *Outstanding Civilian Educator Award*, the *Class of 2007 Well Beyond the Call of Duty Award*, and three separate awards for excellence in medical education: *Outstanding Instructor*; *Student Advocate*; and, *Best Use of Medical Technology*

Awards. During 2004, the medical students hosted ***Operation Appreciation***, during which APG courses received *Best Overall Course*, *Best Course Supplemental Materials*, and *Outstanding Class Notes*. All seven individual awards were presented to APG faculty members.

In addition to faculty participation in graduate courses offered by the various Doctoral Programs at the University, APG faculty members, in a collaborative project with the National Naval Medical Center (NNMC) Department of Anesthesiology and the USU SOM Department of Anesthesiology, operate the Patient Simulation Laboratory (PSL). Since its inception in 1997, the PSL has created and presented patient simulation-based clinical education for USU students as well as for clinicians from local military treatment facilities. ***To extend the reach of the simulation-based education, the PSL supports an ultra-high speed Internet-2 Advanced Distance Education Network throughout USU with links to NNMC and the National Library of Medicine***. APG faculty are also active members of two USU interdisciplinary programs: the Molecular and Cell Biology and the Neuroscience Graduate Programs. Many graduate students in these programs are undertaking their thesis research in APG laboratories.

True to Arrowsmith's view that bench research leads to new breakthroughs for conquering disease and illness, APG faculty direct substantive medical research programs related to military medicine. This newly integrated Department offers a wide range of varied and collaborative research programs, which employ anatomical, electrophysiological, biochemical, cellular and molecular biological methods to address medical problems associated with neurodegenerative disorders, such as: Multiple Sclerosis; Parkinson's Disease and Alzheimer's Disease; Down Syndrome; Canavan Disease; traumatic brain injury; stroke; hemorrhagic shock; and, peripheral nerve injury. Faculty members also have active research programs in hypertension and cardiovascular pathophysiology, neuroimmune responses of gastrointestinal function, and understanding metabolic disorders such as Cystic Fibrosis and Diabetes. Studies within the Department focus on: the regulation of neuronal gene expression; neuroendocrine secretory processes; the role of glial cells in CNS injury and disease; and, neuronal regeneration and plasticity. Several programs employ state-of-the-art approaches, to include: cell therapy using engineered cells; gene therapy using viral and chemical vectors; knock-out and transgenic mouse models; microarray; mass spectrometry; and, genomic and proteomic technologies. The Department's research funding is supported by the National Institutes of Health, the National Science Foundation, the TriService Nursing Research Program, the Alzheimer's Association, the Juvenile Diabetes Foundation, the Cystic Fibrosis Foundation, Foundation Jerome Lejeune, the Maryland State Board of Spinal Cord Research, the Department of Defense/Veterans Affairs Head Injury Program, as well as the USU Intramural Grants Program. **The total amount of research funding in 2004 for APG exceeded $5.9 million.**

Interdisciplinary Research Programs. The research and development goals of the USU strategic plan are to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. In addition to the above-described research in the newly integrated Department of APG, there are three interdisciplinary research programs at USU: 1) ***Emerging Infectious Diseases.*** Initially, a special interest group from the USU SOM Departments of Microbiology and Immunology (MIC) and Preventive Medicine and Biometrics (PMB), to include faculty from other departments who were interested in infectious diseases, began meeting and successfully submitted a proposal for an NIH training grant in this area. This effort led, in 1999, to the establishment of the Emerging Infectious Diseases (EID) Graduate Program with seven inaugural graduate students matriculating in the Fall of 2000. Since then, 31 uniformed and civilian students have entered the program, to include nine students who entered the EID Program in the Fall of 2004. The EID Program has three academic tracks within the field of emerging infectious diseases: Microbiology and Immunology; Pathology; and, Preventive Medicine/Parasitology; the research training emphasizes modern methods in molecular biology, cell biology, and interdisciplinary

approaches. **As part of the EID Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate programs in the country to offer formal training in this critical area.** The establishment of this program at USU by the SOM formally recognizes the breadth of disciplines spanned by emerging infectious diseases and the extent to which advances in these areas can affect the current and future health of individuals within the United States and also in the global arena. The implementation of an interdisciplinary and interdepartmental Program in Emerging and Infectious Diseases broadens and enhances the overall educational objectives of USU and brings together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. **Eleanor S. Metcalf, Ph.D., Professor, USU SOM Department of Microbiology and Immunology,** is the Program Director; she can be contacted by e-mail at <*emetcalf@usuhs.mil*> or at <*www.usuhs.mil/mic/eid.html*>; 2) ***Molecular and Cell Biology.*** An Interdisciplinary Program, in Molecular and Cell Biology (including Genetics), was developed in 1993, to contribute to cross-disciplinary interactions and to develop the critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. Program. This interdisciplinary Ph.D. Degree Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Research areas include: molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways; exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Two students entered the program in August of 2004; one civilian received a Doctoral Degree and one uniformed officer received a Master Degree during USU's May 2004 Commencement Ceremonies. **Jeffrey M. Harmon, Ph.D., Professor, USU SOM Department of Pharmacology,** was appointed as the third Director of the Molecular and Cell Biology (MCB) Program; he oversees the studies of the MCB students and coordinates with faculty mainly from six SOM departments. He can be contacted by e-mail at <*jharmon@usuhs.mil*> or <*www.usuhs.mil/mcb/index.html*>; and, 3) ***Neuroscience.*** The Interdisciplinary Program in Neuroscience and its Ph.D. Graduate Program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series and flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. Three students entered the program in August of 2004; and, two individuals (both civilians) received Doctoral Degrees during USU's May 2004 Commencement Ceremonies. **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics,** is the Director of the Neuroscience Program; Doctor Armstrong can be contacted by e-mail at <*rarmstrong@usuhs.mil*> or at <*www.usuhs.mil/nes/home.html*>.

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**Selected Profiles of USU School of Medicine Faculty.**

**USU Associate Dean Selected to Serve as Chair, Accreditation Council for Graduate Medical Education (ACGME). Emmanuel G. Cassimatis, M.D., Professor of Psychiatry and SOM Associate Dean for Clinical Affairs,** was ***elected to serve as Chair of the Accreditation Council for Graduate Medical Education (ACGME) for a two-year period, effective October 1, 2004*** (*he replaced Charles L. Rice, M.D., who was selected by the Secretary of Defense to serve as the fifth President of USU*). Dr. Cassimatis continues to serve on the American Medical Association (AMA) Council on Medical Education and on the AMA/American Board of Medical Specialties (ABMS) Liaison Committee on Specialty Boards, as the Immediate Past Chair for both organizations. He additionally serves on the Board of Managers of the Association of Military Surgeons of the United States (AMSUS), as the AMSUS Delegate to the AMA House of Delegates, and as the Vice President of the National Medical Veterans Society. ***He was most recently appointed to the Leadership Group, AMA Initiative to Transform Medical Education.*** During 2004, Dr. Cassimatis made presentations at several national and international meetings, including a Workshop on Military Medical Education at the Medical University of Lodz, Lodz, Poland; and, at a joint meeting of the Hellenic Psychiatric Association and the Hellenic-American Psychiatric Association in Kos, Greece. Dr. Cassimatis' contributions to medical education were ***recognized, during 2004, by the USU students, who elected him to Alpha Omega Alpha as a faculty member***.

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**USU Internist Receives Inaugural Award. Major Steve Durning, USAF, MC, Associate Professor, USU SOM Department of Medicine,** was ***selected to receive one of the most prestigious awards offered by the American College of Physicians, the Herbert S. Waxman Award***, during 2004. The award is designed to provide national recognition to an outstanding medical educator. Major Durning, a general internist, ***directs the Introduction to Clinical Reasoning Course*** for second-year medical students; and, he has developed a variety of innovative measures that have significantly improved medical student performance on both standardized tests and clinical practicum. Major Durning received the award during a special ceremony at the American College of Physicians' Annual Session, in April of 2005.

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**USU Research Featured in National Geographic Special.** During 2004-2005, **Michael J. Daly, Ph.D., Associate Professor, USU SOM Department of Pathology,** continued to conduct research in genome-based, high-throughput technologies of the radiation resistant bacterium *Deinococcus* radiodurans. ***Dr. Daly published an experimental paper in Science magazine in November of 2004, showing that intracellular manganese accumulation facilitates radiation resistance. The paper was reported in newspapers and this research will be featured in a National Geographic special, in 2005.*** A summary of the work was published by Nature (*http://www.nature.com/news/2004/040927/pf/040927-18_pf.html*). Since then, Dr. Daly has validated two predictions of his model, with important implications. This ***current work challenges two widely held beliefs: 1) the principal cause of cell death in irradiated cells is DNA damage; and, 2) evolution of aerobic life on Earth followed the appearance of photosynthesis***. Collectively, his group's research supports that superoxide, which is a commonly ignored oxygen-free radical produced by radiation, is a major protagonist in radiation toxicity, mediated by protein damage; and, bacteria such as D. radiodurans can generate oxygen gas from oxygen radicals produced during irradiation. If this is the case, it raises some interesting questions: 1) could the production of high levels of superoxide by radiation

explain why many organisms are killed at doses that cause little DNA damage?; 2) could aerobic life on Earth have evolved before the appearance of photosynthesis?; 3) are superoxide-scavengers such as Tempol potentially good radioprotectors?; and, 4) might superoxide derivatives such as peroxynitrite help explain the radiation-induced *bystander response*? The Year 2004 also brought in ***two new research grants for Dr. Daly from the United States Department of Energy (DOE), to support on-going work in radiation biology, totalling $1.3 million***. All of this progress and experience continues to be brought to bear on his teaching, and now, to the USUHS Radiation Safety Committee (RSC); Dr. Daly was appointed to serve as the Chairman of the RSC in April of 2005.

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**Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology,** became ***the first uniformed member appointed to the Accreditation Council for Graduate Medical Education (ACGME) Residency Review Committee for Obstetrics and Gynecology***. This twelve-member group is responsible for accreditation decisions for all Obstetrics and Gynecology Residency Programs in the United States. Colonel Satin, a 1986 graduate of the USU SOM, is ***board-certified in Maternal-Fetal Medicine and Obstetrics and Gynecology and nationally recognized as a leader in the use of simulation for residency training in Obstetrics and Gynecology***. In addition to publishing numerous manuscripts, he has ***delivered plenary session lectures to the Council of Resident Education (CREOG) and workshops for the Association of Professors of Gynecology and Obstetrics (APGO)***. A nationally recognized expert in labor stimulation and labor management, Colonel Satin has authored over 120 peer-reviewed manuscripts, abstracts, and book chapters. In addition to his duties at USU and the National Capital Consortium, Dr. Satin ***serves as an Oral Examiner for the American Board of Obstetrics and Gynecology***. He was also appointed to serve on the American College of Obstetricians and Gynecologists Committee on Practice Bulletins - Obstetrics; this group is responsible for issuing national guidelines for obstetric practice.

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**USU Starter Grant Leads to the Elimination of Pain and Saving the Lives of Patients with Barrett's Esophagus and Other Deadly Esophageal Diseases Without Performing Major Surgery.** USU faculty members, **CAPT Mark Johnston, MC, USN,** and **Andre Dubois, M.D., Ph.D.,** both members of the **USU SOM Department of Medicine**, were featured in an article, *Navy Doctor Pioneers Esophagus Treatment Technique*, on April 19, 2005, by the American Forces Press Service. CAPT Mark Johnston, at the National Naval Medical Center, Bethesda, Maryland, has found a way to eliminate pain and suffering and save the lives of patients with Barrett's Esophagus and other deadly esophageal diseases without performing major surgery, which has been the normal recourse. CAPT Johnston is making medical history with his innovative use of ***cryotherapy***, the application of extreme cold, for the treatment of serious esophageal diseases. The freezing technique has been used for decades in treating certain cancers and in various dental and pulmonary procedures. However, this marks the first time the technique, which dates back to around 1850, is being used in the field of gastroenterology for esophageal mucosal ablation and other diseases. Barrett's Esophagus is a condition that occurs when acid from the stomach burns off the lining of the esophagus. Generally, when it heals, it will produce normal tissue; however, in some cases abnormal tissue may result; with the advent of this kind of cell, the risk of getting cancer in the esophagus significantly increases. Barrett's Esophagus can lead to two common forms of esophageal cancer, squamous cell carcinoma and adenocarcinoma; about 700,000 adults in the United States suffer from this disease. In 1994, CAPT Johnston questioned why one could not freeze the esophagus; following an extensive search,

he could not find anyone working with this concept. Encouraged by his USU mentor, **Dr. Andre Dubois**, he built a prototype device in his home garage. ***In 1995, he obtained a $12,000 starter grant from USU*** and was able to continue with his research. Today, CAPT Johnston's freezing technique is in the research and development stage; ***it replaces surgery*** (which generally results in the patient being hospitalized from 7 to 21 days) ***with an out-patient procedure that takes only 15 to 20 minutes, and is pain-free; the patient can eat and drink immediately following the procedure. More than 25 patients have been successfully treated, including two with high-grade dysplasia, a close precursor to cancer***. In addition, one patient, who could not receive additional radiation chemotherapy upon the recurrence of cancer in his esophagus, has also received the procedure; following four 15-minute treatments with cryoablation, one month apart, the cancerous tumor is totally gone and the patient is currently in remission. A technology firm has agreed to develop the device; however, in order to comply with patent laws and royalty agreements, CAPT Johnston had to permanently divest himself of any royalties resulting from his device and has designated all royalties to a charity devoted to humanitarian missions. CAPT Johnston's clinical research is not being done anywhere else.

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**Retired USU President Is Named Health Leader of the Year. James A. Zimble, M.D., President of USU from 1991 through August of 2004, and 30th Surgeon General of the Navy,** was selected as ***the Health Leader of the Year by the Commissioned Officers Association (COA) of the United States Public Health Service (USPHS).*** Vice Admiral Zimble was recognized for his distinguished service directed toward the goal of advancing the Nation's health status. Dr. Zimble's service as the Navy Surgeon General was marked by a progression of difficult national crises, which were well met through his dedicated and skillful leadership. That style was honed through his service in a variety of clinical and managerial posts prior to his elevation to serve as the head of the Navy's health and medical system. He carried that experience and personal touch to his post retirement position as President of USU. His commitment to performance-based leadership, force protection, technologic innovation, rapid reaction to global threats and, humanitarian crises made USU an academic hallmark of innovative health training and response. His leadership contributed to making USU Graduate Education Programs rank among the most respected in the country. Today, PHS Commissioned Corps officers are enrolled in medicine, nursing, and Graduate Education Programs in Public Health at USU alongside other uniformed personnel from the Army, Navy, and Air Force. Previous recipients of the COA Health Leader of the Year Award include: Dr. Julie Gerberding, Director of the Centers for Disease Control and Prevention; Rear Admiral Kenneth Moritsugu, United States Deputy Surgeon General; the Honorable Tommy Thompson, former Secretary of the Department of Health and Human Services; and United States Senators Bill Frist, Tim Hutchinson, and John Warner. Also, on March 11, 2005, the American Medical Association (AMA) announced that ***Dr. Zimble was one of eight recipients of the 2005 Dr. Nathan Davis Award for Outstanding Government Service, the highest award the Nation's largest physician organization can bestow upon a public official.*** The award, named for the founding father of the AMA, recognizes elected and career officials in Federal, state, or municipal service whose outstanding contributions have promoted the art and science of medicine and the betterment of public health. In addition to Dr. Zimble, this year's recipients included: United States Senators Charles E. Grassley and Max Baucus; A. Drew Edmondson, Attorney General of the State of Oklahoma; the Honorable William Winkenwerder, Jr., M.D., M.B.A., Assistant Secretary of Defense for Health Affairs, Department of Defense; and, the Honorable Vi Simpson, Indiana State Senate.

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**USU Professor of Medicine Selected as President of the Alliance for Clinical Education. Louis Pangaro, M.D. Professor of Medicine, Vice-Chairman, Educational Programs, USU SOM Department of Medicine,** has been ***selected to serve as President of the Alliance for Clinical Education (ACE), a multidisciplinary group formed, in 1992, to foster collaboration across specialties to promote excellence in the clinical education of medical students***. Its members represent all seven of the national organizations of clerkship directors.

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**Partnership Focuses on Compounds to Protect Against Radiation Exposure.** The Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF - (*http://www.hjf.org*) has entered into an agreement with USU and Humanetics Corporation to develop and commercialize nutritional supplements and drugs that show promise in boosting the immune system to protect against challenges from exposure to radiation. The primary aim of the program is to screen, develop, and test compounds that could protect from dangerous radiation levels associated with a nuclear incident or terrorist attack. Operating through a unique Master Cooperative Research and Development Agreement (CRADA), USU is conducting the research program through the Armed Forces Radiobiology Research Institute (AFRRI) and the USU School of Medicine. ***AFRRI is the Nation's premier center for radiation injury countermeasure research. AFRRI Director, Colonel David G. Jarrett, MC, USA, pointed out that this project will allow expansion of AFRRI's research.*** It is believed that this program will accelerate the development of new ways to address radiation-related terrorism threats, and may provide a safe, cost-effective means of diminishing radiation injury for large numbers of people. In July of 2004, HJF, USU/AFRRI, and Humanetics entered into their first CRADA to develop a nutritional supplement that will support immune system function. Under this agreement, AFRRI researchers are working with Humanetics to develop a compound to support immune function and to explore the potential benefits of the compound for military personnel. Military service members are often in situations that could present challenges to their immune systems, including chronic stress from psychological and environmental factors, military training, and combat. Recognizing the potential for nutritional supplements to strengthen immune function, AFRRI and Humanetics expanded their efforts by designing and implementing a unique joint research program within AFRRI to screen, develop, and test several nutritional supplements that exhibit such potential. The Master CRADA, unlike a standard CRADA, is not limited to one compound, so it provides the flexibility to rapidly incorporate new candidate compounds into the research program. In addition to roughly 10 million United States military service members and first responders, it is estimated that 90 million civilians in the top 10 metropolitan areas are considered potential victims of a terrorist attack. Humanetics Corporation is a privately-held company headquartered in Minneapolis, Minnesota. The company focuses on delivering proprietary, science-based and clinically-tested solutions to consumer health and aging concerns (*http://www.humaneticscorp.com*).

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**USU Chair Oversees the Implementation of a Health Education Campaign.** A team of experts in military medicine and health communication at USU have launched a new health education campaign, ***Courage to Care***. In particular, *Courage to Care* is aimed at helping combatants to reintegrate back into their families upon their return from deployment in Iraq and Afghanistan. In general, the campaign is geared toward the entire Department of Defense community: active duty service members; members of the National Guard and the Reserves; their families; and, the health and community providers who serve them. *Courage to Care* consists of ready-to-use fact sheets written for physician providers, as well as servicemen and women, on topics about military life and health. The first two fact sheets are titled ***Reintegration***

***Roadmap - Shared Sense of Purpose*** (for the health and social service provider) and ***Becoming a Couple Again - Creating a Shared Sense of Purpose*** (for military couples experiencing the transition). The content for the series of fact sheets is derived from interviews conducted by USU's professionals with service members and their families who have experienced combat stress and family separation. The fact sheets describe the reintegration challenges and offer a step-by-step process for assisting individuals to re-establish their relationships. Nancy Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, suggested the campaign title to convey the courage of military doctors, psychiatrists and counselors; the fact sheets are concise, contemporary and interesting. The USU-based campaign was conceived by **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress (CSTS)**. Ursano oversees that the campaign speaks to the multiple stressors faced by families in addition to traumatic stress caused during combat deployment (i.e., taking care of a soldier who has lost his legs or a child with chronic diabetes). Dr. Ursano ensures that *Courage to Care* serves as an extension of USU's work in educating health providers and in enhancing their communication skills with the military family. The fact sheets have been lauded by the Reserve Components, military commanders, and the Office of the Secretary of Defense, Health Affairs.

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**USU Researcher Leads One of Two Groups to Independently Publish the Identity of the Human Protein that Facilitates Infection by the Nipah and Hendra Viruses.** Two groups have independently published the identity of the human protein that facilitates infection by the Nipah and Hendra viruses. First recognized in the 1990's, these two emerging infectious animal diseases, which are transmissible to humans, are considered possible bioterror agents. In 1994, 15 horses and two humans near Brisbane, Australia, presented with fatal acute respiratory disease. The etiologic agent was named Hendra virus (HeV) and classified in a new genus of the viral family Paramyxoviridae. A Malaysian outbreak of respiratory infections among pigs in 1998 spread to nearly 370 people in the form of a viral encephalitis, killing 105. The identified viral pathogen, named Nipah virus (NiV), was also classified as a paramyxovirus. Though the viral proteins responsible for attachment were identified, no one had yet found the receptor that allows Nipah and Hendra viruses to enter host cells. The new studies point to a cell surface protein, Ephrin-B2, as the mechanism for entry. The protein is present in humans, horses, pigs, bats, and other mammals; this finding is consistent with the wide range of animals susceptible to Nipah and Hendra infection. A team led by **Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology,** utilized a microarray screen to narrow down the possible receptors. Working independently, Benhur Lee, M.D., and colleagues at the University of California, Los Angeles (UCLA) identified the receptor using an immunoprecipitation strategy. *Proceedings of the National Academy of Sciences* (PNAS) published the USU group's findings on-line on July 5, 2005. The authors had previously identified a human cell line not susceptible to infection by NiV or HeV. Using microchips embedded with thousands of candidate genes, they compared genes expressed in this resistant cell line to those in cell lines susceptible to viral infection. Twenty-one candidate genes were expressed only in the susceptible cell lines and from this group, the researchers identified the 10 genes expressed most strongly in the susceptible cells. These were transfected individually into the resistant cell line; only Ephrin-B2 caused the resistant cells to become susceptible to infection. Both groups highlighted the close concordance between patterns of Ephrin-B2 and sites of infection. Ephrin-B2 is essential for vasculogenesis and axonal guidance, and is expressed on endothelial cells, neurons and smooth muscle cells surrounding small arteries and arterioles; an expression pattern highly concordant with the known cellular tropism of NiV. The two groups also pointed out the conserved nature of the Ephrin family of cell surface proteins and noted that this could explain the broad range of species susceptible to infection by Nipah and Hendra viruses. Observing that NiV and HeV have been documented in flying foxes, the PNAS article points out that it will be of interest to determine whether

(Ephrin-B2) serves as the virus receptor in these natural animal hosts. There are presently no vaccines or approved therapeutics for NiV or HeV infection. Knowing both the viral and cell proteins involved in fusion will allow scientists to develop vaccines and treatments for these two important emerging infectious diseases. Both studies were funded by the National Institute of Allergy and Infectious Diseases (NIAID).

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**USU Surgeon Is the 13th to Receive the Michael E. DeBakey Award. Norman M. Rich, M.D., F.A.C.S., D.M.C.C., Professor and Founding Chair, USU SOM Department of Surgery,** joined 12 of the world's most prominent surgeons, during 2004, when he was named the ***Michael E. DeBakey Award Recipient*** by the Michael E. DeBakey International Surgical Society. Dr. DeBakey, an internationally renowned cardiovascular surgeon, medical inventor, medical statesman, and teacher, has trained thousands of surgeons since 1948. In 1977, the Michael E. DeBakey International Surgical Society was founded with the goal of perpetuating DeBakey's vision through scholarship, training and recognition. Dr. Rich, Chair Emeritus and namesake of USU's Norman M. Rich Department of Surgery, was presented the award at the Society's 25th Congress in Houston, Texas, in May of 2004. The award recognized him for his significant contributions to medicine and surgery over the past 40 years, which include the establishment of the Vietnam Vascular Registry and his service as Chairman of the USU SOM Department of Surgery. The Michael E. DeBakey Award is a singular honor bestowed only on the world's most outstanding surgeons. Dr. Rich is the 13th surgeon worldwide to receive the award, a bronze likeness of Dr. DeBakey. Since 1978, the Michael E. DeBakey International Surgical Society has selected a surgeon to receive the award at their biennial meeting, with the exception of 2002. Dr. Rich's ties to DeBakey were formed years ago when he was introduced to the famed physician while an undergraduate student at Stanford University. Dr. DeBakey has been a loyal supporter of USU, serving on the Surgery Department's Visiting Board since the University's establishment; he has also served as Past-President of the USU Surgical Associates and was presented with an Honorary Degree from USU in 1996. Also, a festschrift in honor of Dr. Rich was held in conjunction with the USU Surgical Associates Day on March 26-27, 2004. National and International Surgical Colleagues honored Dr. Rich for his 25 years of service to medical education and patient care as the first Chairman of the USU School of Medicine Department of Surgery. Thirty contributors to the program documented the achievements of Dr. Rich in academics, research, and patient care. ***The World Journal of Surgery*** published these articles in the Spring of 2005.

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**USU Faculty Member Provides Workshops on Teaching Medical Students in the Ambulatory Setting. Commander G. Dodd Denton, MC, USN, Associate Professor, USU SOM Department of Medicine,** who serves as the **Deputy Director for the Third-Year Clerkships** and as the **Director of the National Naval Medical Center (NNMC) Ambulatory Rotations**, was selected to attend the prestigious Medical Faculty Development Course at Stanford University. Following that training, ***he has conducted several workshops at USU and NNMC focused on training residents in the various learning modules***. During 2004-2005, Dr. Denton was an invited speaker at various sites over the past year, to include: Grand Rounds at the Malcom Grow Medical Center (April 2004) and at a Workshop at the Regional Society of General Internal Medicine Meeting (March 2004) on the topic, ***Teaching Students in the Ambulatory Setting: Help Is Only a RIME Away***; Workshop Leader at the San Antonio Uniformed Service Health Education Consortium Annual Program Directors Retreat (August 2004) on the topic, ***From Product to Process: Measures of Clinical Competency***; and, the National Capital Consortium Course for Program Directors (January 2005) on ***Theory and Practice of Assessment***. Commander Denton was also requested

to present on the topic, ***Medical Student Resource Use and Knowledge Acquisition in the Medicine Clerkship***, at the following events: the 27th Annual Society of General Internal Medicine National Meeting in Chicago, Illinois (May 2004); the 2004 CDIM Annual Meeting held in Nashville, Tennessee (October 2004); and, the 2004 RIME Annual Meeting held in Boston, Massachusetts (November 2004). In January of 2005, he presented ***Theory and Practice of Assessment*** at the National Capital Consortium Course for Program Directors. He also presented the ***Control of Session Module of the Stanford Clinical Teaching Series*** at the National Children's Hospital in February of 2005. In addition, he was invited to speak at the 28th Annual Meeting of the Society of General Internal Medicine National Meeting in New Orleans on the topic, ***Blood Pressure Monitoring into Your Clinical Practice*** (May 2005). Dr. Denton's recent publications, in collaboration with his colleagues in the Department of Medicine as the lead author, include: *A call for the Use of Confidence Intervals with Correlation Coefficients*, Teaching and Learning in Medicine, 2004 Winter, 16(1), pages 111-112; *Is a Faculty Developed Pre-Test Equivalent to Pre-Third Year GPA or USMLE Step 1 as a Predictor of Third-Year Internal Medicine Clerkship Outcomes?*, Teaching and Learning in Medicine, 2004 Fall, 16(4), pages 329-332; and, *A Time and Motion Study of the Effect of Ambulatory Medical Students on the Duration of General Internal Medicine Clinics*, Teaching and Learning in Medicine, 2005 Summer, 17(3), in Press.

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**USU Researchers Receive Continuous Funding from the National Institutes of Health.** One measure of the success of the USU Research Programs and individual investigators is the length of time for which a researcher has held continuous funding for a given project. A number of University faculty hold grants funded by the National Institutes of Health (NIH) for at least five years. The following individuals hold single grants with continuous NIH funding from five to nine years: **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of APG** (5 years); **Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology** (6 years); **Peter D'Arpa, Ph.D., Assistant Professor, USU SOM Department of Biochemistry** (9 years); **Andre T. Dubois, M.D., Ph.D., Research Professor, USU SOM Department of Medicine** (5 years); **Chou-Zen Giam, Ph.D., Professor and Vice Chair, USU SOM Department of Microbiology & Immunology** (8 years); **David S. Horowitz, Ph.D., Associate Professor, USU SOM Department of Biochemistry** (5 years); **Ann E. Jerse, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology** (6 years); **Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of APG** (6 years); **CAPT Gerald V. Quinnan, Jr., M.D., USPHS, Professor and Chair, USU SOM Department of Preventive Medicine and Biometrics** (8 years); **Clifford M. Snapper, M.D., Professor, USU SOM Department of Pathology** (5 years); and, **Ajay Verma, M.D., Ph.D., Associate Professor, USU SOM Department of Neurology** (6 years). **Ishaiahu Shechter, Ph.D., Professor, USU SOM Department of Surgery,** has held a funded grant for 10 consecutive years; **Anthony T. Maurelli, Ph.D., Professor, USU SOM Department of Microbiology & Immunology,** has been funded for 15 continuous years; and, **Robert M. Friedman, M.D., Professor and Chair, USU SOM Department of Pathology,** has been consecutively funded for 16 years. Both **Sharon L. Juliano, Ph.D., Professor, USU SOM Department of APG,** and **Paul D. Rick, Ph.D., Professor and Chair, USU SOM Department of Biochemistry,** have been consecutively funded for 18 years. And, **Alison D. O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology & Immunology,** has been funded for 22 years, while **Brian M. Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology,** has been consecutively funded for 23 years. (*Appendix C provides selected examples of billeted and off-campus members of USU Departments and Programs and Department Activities receiving special recognition during 2004/5.*)

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**RESEARCH CENTERS AND PROGRAMS.**

**We will coordinate with other agencies to develop and conduct specialized training for health care professionals in:**

- **Disaster and Humanitarian Relief**
- **Weapons of Mass Destruction**
- **Traumatic and Post-Traumatic Stress**
- **Preventive Medicine for Mission Readiness**
- **Force Health Protection and Healthy Lifestyles**

- **USU Strategic Plan,** Goal 1, *Education*, 2003-2004.

**We will emphasize research and development relevant to military, Federal, and homeland security needs.**

- **USU Strategic Plan,** Goal 3, *Research*, 2003-2004.

**Research is Directed Toward Military Requirements.** As discussed in the *Strategic Planning* and *Research Administration* sections of Part I of this annual report, the majority of the research programs and projects currently taking place at USU are focused on meeting the needs of the Uniformed Services. Research protocols throughout the SOM study diseases of high military relevance for troop deployment and sustainment. ***During 2004, the USU $2.4 million INTRAMURAL RESEARCH PROGRAM consisted of 66 protocols, 38*** awards for clinical research, and two projects in the areas of educational research. ***USU provided oversight, during 2004, for 13 multi-site, CONGRESSIONALLY FUNDED RESEARCH PROGRAMS; together these 13 programs, funded at $65 million, support more than 180 individual research projects conducted at USU and elsewhere***. Federal agencies such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the United States Army Medical Research and Materiel Command (USAMRMC), and the Office of Naval Research (ONR) support the ***EXTRAMURALLY FUNDED RESEARCH at USU; in 2004, extramural research included 136 projects funded at $58.4 million***. Over 400 active projects, funded at a total of $126 million, continue to explore a wide span of scientific areas, including basic biomedical questions central to the mission of the Military Health System such as: 1) the mechanisms, transmission and control of a wide range of infectious and/or common diseases that may be faced by warfighters; 2) a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; 3) women's health issues in the DoD; and, 4) the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents.

The understanding gleaned by USU's military relevant research is opening avenues to better ensure medical readiness and quality care under austere circumstances. For example, a USU trauma surgeon and his research team ***evaluated a number of agents to control bleeding from wounds on the battlefield, leading to the development and fielding of QuikClot, which is now included in a new aid bag***; over 15,000 bags have been issued to Marines deployed in Iraq. A USU off-campus faculty member worked with a USU-based team and ***developed body-armor that is currently fielded, utilized in combat zones, and saving countless lives***. USU faculty and SOM alumnus are leading the Army's Regional Anesthesia Pain Management Initiative and have ***performed the procedure at the 31st Combat Support Hospital in***

***Baghdad; regional anesthesia allows continuous access for local anesthetic to control pain and is being used on the battlefield and in support hospitals to provide continuous pain control*** from the point of injury through extended evacuation to Germany and the United States. And, the USU Center for the Study of Traumatic Stress (CSTS) ensures the continued provision of critically required military-unique, medical expertise and consultative support relevant to the traumatic impact of CBRNE-related incidents and combat casualties. ***In 2005, CSTS launched its Courage to Care Campaign for the provision of critically required, just-in-time fact sheets relevant to deployed forces and uniformed personnel throughout the MHS.***

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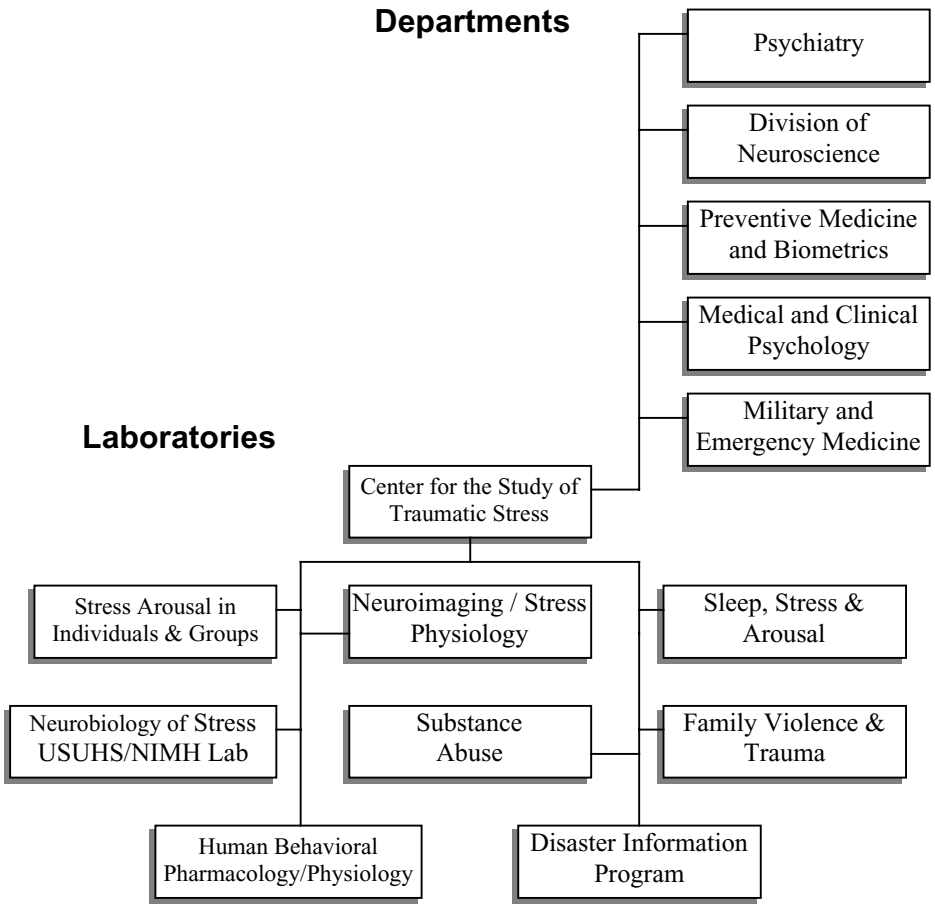
***The following SOM Centers, Activities, and individual researchers are provided as selected examples of the research and consultative services taking place throughout the School of Medicine.*** *(See Appendix C for Additional Examples of Individual Achievements and Recognition.)*

**SELECTED PROFILES OF SOM CENTERS AND PROGRAMS**

**USU School of Medicine Department of Psychiatry and the Center for the Study of Traumatic Stress.**




Establishment. The USU Center for the Study of Traumatic Stress (CSTS) was established in 1987, as a center of excellence for responding to DoD's long-term concerns over the substantial health risks resulting from the traumatic impact of: 1) the possibility, or actual use, of weapons of mass destruction (WMD) during combat, acts of terrorism or hostage events; 2) combat, peacemaking, peacekeeping, and operations other than war; 3) natural disasters such as hurricanes, tornadoes, or floods; and, 4) more common stress producing events such as physical assaults and motor vehicle, shipboard, or airplane accidents in both the uniformed and civilian communities. As the Academic Health Sciences Center for the Uniformed

Services, the University is well situated to assist in meeting the needs of the Military Health System (MHS) and of the Nation in the area of ***traumatic stress***.

At present, investigators from the four USU SOM Departments of Psychiatry, Preventive Medicine and Biometrics, Military and Emergency Medicine, and Medical and Clinical Psychology, and the SOM Division of Neuroscience are collaborating on extensive studies on traumatic stress. The CSTS scientists are involved in a wide range of projects including responses to natural, man-made, and environmental disasters; the studies examine community responses to loss of life and property, community displacement, and organizational leadership. In addition, the CSTS research projects involve the examination of the physiological changes after trauma and the neurobiology of stress. Since its establishment, the CSTS has provided education and consultation to: the Armed Forces; the Department of Veterans Affairs; the Department of State; the Central Intelligence Agency; the National Aeronautics and Space Administration; the Institute of Medicine; the National Transportation Safety Board; the National Institute of Mental Health; the American Medical Association; the American Psychiatric Association; the American Psychological Association; the American Red Cross; the World Health Organization; the Disaster Stress Center of the University of Oslo, Norway; the Traumatic Stress Center of the Hadassah Medical Center in Jerusalem, Israel; and, the Italian Ministry of Health.

**The chaos that occurs when lives are thrown into the turmoil of terrorism and disaster has a structure that becomes increasingly evident through research, clinical work, and related community concerns. Further understanding of the consequences of terrorism and disaster will aid leaders and health care providers in planning for such events.**

- **Robert J. Ursano, M.D., Professor and Chair, Department of Psychiatry, Director, Center for the Study of Traumatic Stress, USUHS,** Terrorism and Disaster: Individual and Community Responses to Extraordinary Events, Cambridge University Press, 2003.

The last quarter of 2001 validated the *reason d'etre* of the CSTS, when ***military unique expertise in disaster mental health and trauma research in terrorism and bioterrorism were recognized as being essential to national security***. Federal and State leaders, as well as the public health and mental health care systems, teaching institutions, and media outlets were seeking to understand the traumatic impact of *9/11*, the anthrax attacks, and the traumatic anxiety generated by those events. CSTS quickly assumed a leadership position in responding to these contingencies and in advising Federal and State leaders on recovery and resiliency; CSTS has continuously sustained its critical support in the form of education, training conferences, research and published work addressing population-based trauma. ***By the end of 2003, CSTS leadership had been instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.*** This new model is of substantial consequence as it demonstrates how ***disaster psychiatry***, *a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's*, has become a recognized, valued and integral component for strengthening homeland security in the 21st Century.

**USU is home to an internationally recognized Center for the Study of Traumatic Stress (CSTS) which ensures the continued provision of critically required medical expertise and consultative support relevant to the traumatic impact of combat, CBRNE-related incidents, crisis management, disaster response, and homeland defense. In collaboration with the Institute of Medicine, the CSTS was instrumental in developing a national strategy for integrating mental health into a public health paradigm for terrorism management and response. CSTS also participated in the NATO-Russian Advanced Scientific Workshop on Planning for Bioterrorism and consulted with the World Health Organization on issues related to bioterrorism and mental health. In 2004, CSTS conducted a workshop examining USU's military medical curriculum and the experiences of military physicians in Afghanistan and Iraq. Subsequently, the center launched its *Courage to Care* campaign for the provision of just-in-time fact sheets relevant to deployed forces, uniformed personnel throughout the Military Health System, and the general public. CSTS fact sheets were widely used by deploying disaster response teams following the *Tsunami of December 2004* and have supported health care professionals around the globe.**

- **USU Board of Regents**, 2005 Report to the Secretary of Defense, June 22, 2005, pages 18-19.

Mission. Today, CSTS is well positioned within the MHS and continues to increase the military's medical knowledge (in the areas of epidemiology, psychology, neurobiology, health care systems and treatment) of the consequences of bioterrorism, trauma, and disaster *and to apply that knowledge* in addressing the real world problems, issues, and requirements of homeland defense, the response to terrorism and disaster, and humanitarian assistance. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, serves as the Director of the CSTS.**

***Preservation of Lessons Learned.*** The health implications of traumatic stress are a focused interest immediately following each traumatic event or disaster, but the data tends to be lost from institutional memory because of the lack of an organized center for the maintenance and development of the resulting information. The USU CSTS has served the Military Health System by capturing, organizing, and maintaining relevant information following disasters, terrorist events, and wars. ***The Center's PROCITE database of citations and full text materials on trauma, disaster, terrorism, and combat has over 19,000 references that can be accessed for the most current information and recommendations on these topics. This database rivals any trauma specialty knowledge resource or library in existence.*** It is this data base that enabled the CSTS to effectively respond, since September 11, 2001, to the traumatic stress resulting from the terrorist acts of war against our Nation. The CSTS conducts research on the neurobiology of traumatic stress and is studying the psychological and behavioral responses to such events as the attack on the *USS Cole* in October of 2000, the attacks on the Twin Towers and the Pentagon in September of 2001, the October 2002 Sniper attacks in the Washington, D.C. area, and the on-going war in Iraq. Additional information is available at <*http://www.centerforthestudyoftraumaticstress.org/*>.

Core Military Competency. The location of the CSTS within the multi-Service environment of USU, with its emphasis on education and development, studies, research, and on-going clinical and operational practice is critical to the development and sustainment of CSTS's ability to provide its ***CORE COMPETENCY - the capability to ensure the continued provision of critically required military-unique, medical expertise and consultative support in response to the impact of traumatic stress during***

***and following activities related to crisis management, disaster response, and homeland defense.*** The successful assessment and management of the behavioral, psychological, and social consequences of WMD-related and other national security contingencies is essential to DoD during the organization of effective responses to such events. Failure to attend to the consequences of WMD may lead to heightened stress or demoralization and could undermine the confidence of the Armed Forces and American citizens in their government and its institutions. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students in the School of Medicine, the Graduate School of Nursing and Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers in the study of traumatic stress. *The Center's unique military medical capability to assess and manage the traumatic impact of WMD and other disaster-related contingencies provides direct support to Homeland Security and Defense*.

Areas of Study. ***Ten major projects are currently funded with well over seven million dollars*** from the following sources: the Department of the Army; the National Institute of Mental Health; the National Alliance for Research on Schizophrenia and Depression; the National Alliance for the Mentally Ill Research Institute; the National Institute on Drug Abuse; the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services; the Stanley Foundation; and, the United States Marine Corps. ***Ongoing studies include the following areas:*** psychological and behavioral responses to weapons of mass destruction; cognitive-behavioral treatment of women with posttraumatic stress disorders; brain imaging of patients with stress disorders following motor vehicle accidents; stress responses to urban sniper attacks; web-based intervention for victims of mass violence; deployment stress; psychiatric consequences of injury in the Iraq War; online risk communication training for primary care providers; efficacy of serotonergic agents in the treatment of stress disorders; stress from handling human remains; and, others. ***Recently funded studies include:*** guidelines for assessing and measuring community resilience; workplace preparedness for terrorism; weapons of mass destruction education; family violence and trauma; stress among emergency workers after an air disaster; combat, deployment, contingency operations, and trauma; basic neurobiology of genetic and second messenger stress responses; stress and arousal symptoms in individuals and groups using the Persian Gulf War symptoms as a paradigm; disaster psychiatry education; natural disasters and health outcome: adult and adolescent responses to Hurricane Andrew; genetic risk for substance abuse and cognitive processing; animal models for the study of the neurobiology of trauma responses and depression; and, the development of a strategic plan for the management of mass violence in the workplace.

Focus of the Nine CSTS Laboratories. The CSTS has nine research laboratories that concentrate on the following areas of study: 1) stress and arousal in individuals and groups; 2) neuroimaging/stress physiology; 3) sleep, stress and arousal; 4) social function in high stress environments; 5) neurobiology of stress; 6) family violence and trauma; 7) human behavioral pharmacology/physiology; 8) substance abuse; and, 9) disaster information.

Activities During 2004/5. The CSTS continued to provide consultation, education and research advances in the field of trauma spectrum responses to extreme environments and events including individual trauma, disasters, terrorism, and combat. The Center has studied over 20,000 individuals including civilian and military populations, victims, families, communities, first responders, police, firefighters, World Trade Center disaster workers, body handlers, and health care personnel related to airplane disasters, earthquakes,

hurricanes, typhoons, and various terrorist attacks (i.e., bombings, anthrax, sniper, etc.). Based upon this knowledge and experience, the CSTS successfully engaged in multiple activities during the past year.

***CSTS Leadership and Expanding National and International Recognition*. Doctor Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry,** and **Director of the CSTS,** served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. His military unique expertise was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response. This new model is of substantial consequence as it demonstrates how disaster psychiatry has become recognized, valued and regarded as an integral component for strengthening homeland security in this Century. The Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy, the National Academies Press, Washington, D.C., 2003.

The CSTS expanded and applied the new model described above and benefited the readiness mission of the MHS through the establishment of the ***Nation's first Disaster and Preventive Psychiatry Fellowship***, which was awarded to **Colonel Elspeth Cameron Ritchie, MC, USA,** an Army psychiatrist. Under the mentorship of the USU CSTS faculty, Lieutenant Colonel Ritchie established an international presence for USU by working in Israel, Egypt, Baghdad, and Iraq, with psychiatrists from the State Department, to improve mental health assessment and interventions following terrorism intrinsic to the war in Iraq. Doctor Ritchie coordinated a planning meeting, which was held at USU, with representatives from the State Department; the National Institute of Mental Health, the Substance Abuse and Mental Health Services Administration; the World Bank; and, Non-Governmental Relief Organizations on the DoD mission and objectives for assisting in rebuilding a mental health system in Iraq.

CSTS Director, Robert J. Ursano, M.D., also chaired the American Psychiatric Association Work Group on Acute Stress Disorder and Post Traumatic Stress, which published the 13th APA practice guideline, ***Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder***, in November of 2004. During an interview with Psychiatric News, Doctor Ursano noted that the guideline is built from the best evidence-based and clinical-practice knowledge that one could ever imagine assembling. With the present concerns of the Nation over terrorism and the need for all clinicians to be able to help those who experience the ravages of a motor vehicle accident, a rape, or a war, this guideline can assure practitioners that they are using the best possible treatment for their patients. The work group reviewed hundreds of articles and research on posttraumatic stress disorder and acute stress disorder in order to publish the 13th APA practice guideline.

Recognition of the international stature of the CSTS also occurred during the international response to the Tsunami Disaster in January of 2005. **The CSTS offered *Just-in-Time Training* to field workers and teams deploying on a variety of missions including the Center for Disease Control's Morgue Mission in support of body recovery following the Tsunami Disaster**. In February of 2005, the CSTS also trained health care providers and scientists volunteering for PROJECT HOPE on the *UNS MERCY*, a 1,000 bed hospital ship traveling to the Tsunami impacted nations. The CSTS team of scientists produced invaluable ***Fact Sheets***, which were posted on the CSTS website for worldwide dissemination. A ***Push-Pack*** of educational materials was written and assembled in response to the Tsunami, which included up-to-date information on the health risks of body recovery, mitigation of psychological stressors for body handlers, grief leadership, and the unique circumstances of missing and unrecovered remains for family and loved ones, to include complicated bereavement. ***These definitive information and practical knowledge resources were provided to psychiatrists and mental health workers in Sri Lanka, Norwegian and***

***Scandinavian government teams working with families whose relatives were dead or missing, Australian Trauma Teams, and international academicians in the field of trauma and disaster***.

***Collaboration Throughout the Military Health System.*** Throughout the past year, **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry, CSTS Scientist,** and **Colonel Elspeth Cameron Ritchie, MC, USA, CSTS Military Disaster Psychiatry Fellow,** provided on the ground consultation to Mental Health Assessment Teams (MHAT) deployed to Iraq. At the request of the Surgeon General of the Army, in September of 2004, Doctor Benedek travelled to Iraq to provide recommendations for medical and mental health care for persons detained by the United States in the Global War on Terror. In addition to specific recommendations for medical and mental health treatment and staffing in military detention facilities, ***his efforts strengthened a consultative relationship between medical personnel in the combat theater and psychiatric consultants at USU***. He also participated in efforts to enhance the Ethics Training Program for troops preparing to deploy as medical providers for Prisoners of War and other detainees.

The Center's ***Family Violence and Trauma Project (FVTP)*** entered its ninth year in October of 2004, and is led by **James E. McCarroll, Ph.D., Research Professor**. The Center's FVTP provides support to Command including the Army Community and Family Support Center Headquarters and Staff; the Headquarters, Department of the Army Family Advocacy Committee; the Family Advocacy Research SubCommittee; Family Advocacy Program Managers; Chiefs of Social Work Services; and, Army Social Workers. The FVTP has provided immediate responses, briefings, papers, and staff studies to the Headquarters Department of the Army Family Advocacy Program Managers and the Family Advocacy Research SubCommittee reference issues involving the scientific and medical aspects of child and spouse abuse. During 2004, the FVTP continued to add to its scientific literature data base of family violence articles. This data base is used for scientific reference to improve the development of family violence research protocols and to further the research education of Army military and civilian research social workers. Many of these articles have been sent to investigators and program managers in the Army's Family Advocacy Program (FAP) and FAP-related programs such as the military police school for teaching police to respond to incidents of family violence. The FVTP has additionally redesigned its quarterly newsletter, Joining Forces, Joining Families, allowing worldwide electronic distribution.

In July of 2004, CSTS faculty led by **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry,** and **Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry,** convened a workshop on ***War Psychiatry Today: Lessons from OEF and OIF***. The workshop examined the experience and preparation of military physicians for combat support in the Global War on Terror. Workshop goals were to identify gaps in current medical training in order to: 1) better prepare physicians to give appropriate mental health care in light of the complexities posed by modern warfare; 2) understand the new challenges that modern warfare places on psychiatrists at all levels of care, from the combat zone through the return to the United States; and, 3) define needs for mental health support in the rehabilitation and reintegration of the wounded back into their units and society. ***This educational activity reflects CSTS's on-going commitment to training future medical officers who will lead the Uniformed Services Medical Corps and Care for those in Harm's Way, in accordance with the USU mission and strategic plan***.

USU's electronic health promotion campaign, ***Courage to Care***, located at <*www.usuhs.mil/psy/courage.html*>, was launched during 2004. This health information campaign was developed by USU military health experts: **Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor,**

**USU SOM Department of Psychiatry**; **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry**; **James E. McCarroll, Ph.D., Research Professor**; and, **Ms. Nancy Vineburgh, Director, CSTS Office of Public Education and Preparedness**. The campaign serves the Nation's Active Duty, Guard and Reserve Components, their families, and health care professionals serving the military community and the Nation. Fact sheets, which include such topics as: ***Reintegration****: Becoming a Couple Again*; ***Caring for Children During Flu Season***; and, ***Psychological First Aid****: Helping Victims in the Immediate Aftermath of a Disaster*, were electronically published and distributed throughout the Department of Defense and civilian academic centers. The program's timely, relevant, attractively packaged information has been recognized and widely applauded at all levels, from senior commanding officers to the spouses of junior enlisted service members. The program was highlighted on August 24, 2004 in an article in Armed Forces Press, *Courage to Care Launches Help for Returning Combatants, Families*. In November of 2004, American Forces Press Service featured the CSTS campaign in *Courage to Care Helps Redeploying Soldiers*; and, on January 21, 2005, American Psychiatric Association News also published *Military Helps Civilian Psychiatrists Respond to Soldiers, Families*. The program is an on-going initiative with future editions planned to address the experiences of the Reserve and Guard Components, helping children and adolescents cope when a parent deploys, and women's health care in austere environments.

***National and International Educational Activities.*** A series of continuing medical education (CME) scenarios written for primary care and mental health providers, ***Terrorism and Disaster: What Clinicians Need to Know***, represents another major educational initiative, developed during 2004, in collaboration with the USU SOM Department of Medicine and the RUSH University Medical Center in Chicago, Illinois. CSTS faculty, **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry**; **Lieutenant Commander Benjamin W. Jordan, MC, USNR, Assistant Professor, USU SOM Department of Psychiatry**; **Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry**; and, **CAPT Thomas Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry**, co-authored ***case presentations*** on the *Impact of the World Trade Center Attacks*, *Suicide Bombings*, *Sarin Gas Attacks*, *Anthrax Attacks*, *Dirty Bomb and Radiation Attacks*, and *Bioterrorism Attacks with Infectious Agents such as Smallpox and Viral Encephalitis*. The first of the series, by Doctors Hall and Hamaoka, ***Psychiatric Sequelae in a Survivor of 9/11***, was published in January of 2005. These articles offer innovative and interactive educational experiences and continuing educational credits for the Nation's primary care physicians and mental health providers, to enhance preparedness and emergency medical response. In another Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) education project, Doctor Thomas Grieger and Doctors Carol Fullerton, Molly Hall, Robert Gifford, and Ms. Nancy Vineburgh are coordinators on a proposal to develop web based learning for health care workers, first responders, and leaders on the effects of, and responses to potential chemical, biological, and radiologic terrorist events. Pilot posting of this site is projected for January of 2006.

In June of 2003, CSTS created an ***Office of Public Education and Preparedness (OPEP)*** under the direction of **Nancy T. Vineburgh, Assistant Professor, USU SOM Department of Psychiatry,** a recognized expert in corporate health promotion and public education on mental health issues. This new office is charged with identifying programs and partnerships that will advance CSTS and USU visibility, expertise, and funding for preparedness programs, especially in the workplace. OPEP objectives include the expansion of CSTS' role in education, consultation, and training provided to the Nation's workplaces and schools and the DoD community. Activities of the OPEP include numerous educational presentations to national CEOs and business leaders, corporate security and workplace health and productivity professionals advancing an understanding of psychological and behavioral issues. Building upon CSTS expertise, these

presentations have resulted in consultation and educational programs with the CDC, NIOSH, the FBI, the United States House of Representatives and Senate Employee Assistance Programs, and the Division of Transportation Security in the Department of Homeland Security. The OPEP Director also published *The Power of the Pink Ribbon: Raising Awareness of the Mental Health Implications of Terrorism* in Psychiatry Interpersonal and Biological Processes, Summer, 2004, as part of a special edition devoted to the trauma and response to the 9/11 attacks. In addition, OPEP Director and CSTS scientists received funding from the Sloan Corporation, in 2004, to conduct a pilot study on corporate organization views and activities reference preparedness for terrorism and other related critical incidents; this work began in 2005. ***The OPEP also worked with the CSTS faculty to introduce a health promotion campaign for the DoD community to enhance healthy lifestyles for families.*** A *Holiday Homecoming Fact Sheet*, which received excellent feedback, has led to a USU-wide promotion campaign launched in 2004. As discussed earlier, the *Courage to Care* campaign is positioning USU as one of the leaders in uniformed health care education within the DoD community.

CSTS has made great strides in educational initiatives involving national and international agency collaboration on: training health care professionals in disaster and humanitarian relief; understanding the traumatic consequences of weapons of mass destruction; and, innovative public education programs reaching new audiences and enhancing force health protection and healthy lifestyles. **The CSTS sponsors trauma and disaster-related fellowship programs, to include the Visiting Science Fellowship Program and the Military Psychiatry Fellowship Program**. Graduates of these programs serve as catalysts for research, educational, and clinical programs throughout the World. Beginning in 1998, when the Center sponsored a visiting scientist from the Japanese National Defense Medical College, the ***CSTS International Training Programs*** have hosted a total of ten scientists from numerous nations, to include: Japan; Singapore; Greece; Korea; Germany; the Republic of Georgia; Italy; and, Israel.

Consistent with the DoD requirement to provide behavioral health expertise for mass casualty responses, population-oriented behavioral health programs, and behavioral health epidemiology, the Department of Psychiatry and the CSTS developed a new two-year ***Disaster/Preventive Psychiatry Fellowship*** sponsored by the National Capital Consortium and approved by the United States Army. The program matriculated its first Fellow in the Summer of 2003. In addition to applying through the established Graduate Medical Education route, candidates must also apply to the USU SOM Graduate Education Programs and be accepted by the USU Master of Public Health Program for their first year. The second year is spent with the Department of Psychiatry's CSTS and includes didactic experience, research, and rotations at other institutions.

**Colonel Elspeth Cameron Ritchie, MC, USA, the *first* CSTS Disaster Psychiatry Fellow,** established an international presence working with State Department psychiatrists to improve plans for mental health interventions following the terrorist attacks in the United States. She presented in Israel on current efforts to respond to the mental health requirements due to the impact of terrorism and attended meetings in Egypt and Baghdad, Iraq, on assessing the mental health requirements and resources of Iraq. In July of 2003, the CSTS sponsored a meeting of national and international leaders at USU to identify the mental health care needs and requirements in Iraq.

**Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry, CSTS Scientific Director,** supervised the educational experiences of the CSTS International Disaster Psychiatry Fellow from Japan (the Japanese Defense University) as part of CSTS' International Training Programs.

**Jun Shigemura, M.D., CSTS International Disaster Psychiatry Fellow from Japan,** was involved in research and humanitarian work with the United States Embassy of Japan and the Japanese Americans' Care Fund, a non-profit organization for Japanese Americans, to study relocation stress and mental health outcomes among Japanese residents in the Washington, D.C. area. He is a founder and a chair for the *DC Japanese Mental Health Network*, a voluntary network of regional Japanese-speaking mental health professionals. Doctor Shigemura also presented the results of the *CSTS Disaster Worker Study* in Tokyo, Japan, in March of 2004.

**Major Isra Rukskul, M.D, of the Royal Thai Army Hospital and the Phramongkutklao (PMK) College of Medicine,** joined the CSTS team, in April of 2005. Doctor Rukskul will study military and disaster psychiatry within the fellowship for one year. Through this international collaboration and sharing of medical expertise in disaster work, the goal is to expand the PMK's curriculum and to allow for the development of a CSTS-like facility, in Thailand.

**Raffaella Querci Daniore, M.D., CSTS Scientist and Member of the Italian Society of Psychiatry,** joined the team in October of 2004. Doctor Daniore has collaborated on numerous studies.

CSTS scientists and faculty are in great demand to give presentations and grand rounds on trauma, disaster and terrorism topics both nationally and internationally. For example, in 2004/5, **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry,** presented two lectures at the ***World Psychiatric Association Meeting held in Florence, Italy, in November of 2004***. The first lecture on Terrorism, Mental Health and Public Health, was based on the Institute of Medicine 2003 Report, *Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy*. The second lecture was centered on Workplace Preparedness Education and Resilience and based on publications from CSTS faculty, scientists, and the CSTS Office of Public Education and Preparedness. The lecture included a focus on sustaining operations and protecting the workforce in the event of a natural disaster or terrorist attack. **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry,** presented at the 2005 TRICARE Conference on Operational Medical Ethics and Detainees; he was also asked to present at the *2005 IDGA Conference on Assessment and Treatment of Emotional Response to War Trauma* and at the *2005 USAEUR Conference* on a variety of topics including medical ethics, treatment of PTSD, and health care workers' response to war, terrorism, and disaster.

***Community/State Activities.*** The ***CSTS and Mrs. Everett Alvarez met with the Governor of Maryland, Robert Ehrlich, on October 5, 2004, at the State House in Annapolis to celebrate Maryland's official Proclamation of National Resiliency Day, which will be recognized annually on September 11th***. USU and the CSTS were recognized for spearheading the event. Maryland was the first state to designate a National Resiliency Day to commemorate the strengths of its citizens, communities and public and private institutions that bounced back from the adversity of September 11th and its aftermath. It is expected that Resiliency Day will serve as a catalyst for individual, organizational and community preparedness. Participants from USU and the CSTS included: **The Honorable Everett Alvarez, Jr., J.D., Chairman of the Presidentially-appointed USU Board of Regents**; **Mrs. Thomasine Alvarez, President of the Friends of USU**; **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, CSTS**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry;** and, **Ms. Nancy Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, Director, CSTS Office of Public Education and Preparedness**. National Resiliency Day grew out of a meeting and mutual interests between Mrs. Alvarez and the CSTS. Mrs. Alvarez, an advocate for national programs and values that promote strength, social cohesion and human continuity, pursued the

idea with the State of Maryland, whose Governor officially proclaimed National Resiliency Day in the State of Maryland on September 11, 2004.

Expanding community outreach on resiliency and disaster, the CSTS developed a traveling exhibit, ***Our Nation's Resiliency:*** *Paintings, Public Education and Preparedness for Terrorism*. This exhibit will be on display in the Russell Rotunda of the United States Senate, the Rayburn Foyer of the United States House of Representatives, the Italian Embassy, and the National Museum of Health and Medicine, during late 2005 and early 2006.

(*CSTS publications are listed at Appendix C, under the USU SOM Department of Psychiatry.*)

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**The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health.**

**Graduate Education in Preventive Medicine and Public Health.**

**USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's *2004 rankings of America's Best Graduate Schools*... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs** (*since this article was published in 2003, the USU Masters/Doctoral Programs in Community/Public Health have been ranked 6th in the Nation in the 2004, 2005, 2006 Directories of America's Best Graduate Schools*).

- USU Medicine, *U.S. News & World Report Ranks USU Graduate Programs in Top Six*, Fall 2003, page 5.

The SOM Department of Preventive Medicine and Biometrics (PMB) offers programs of study leading to the Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (Ph.D) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2005, 520 individuals have earned the following graduate degrees: MPH - 457; MSPH - 8; MTM&H - 28; MS - 1; DrPH - 15; and, Ph.D - 11. During 2004, 43 candidates in the PMB Department were awarded advanced degrees: 2 Doctors of Philosophy; 3 Doctors of Public Health; 37 Masters of Public Health; and, 1 Master of Science in Public Health. The PMB Department has continued to attract candidates for its graduate degree programs, which are of particular relevance to the Uniformed Services. ***Fifty students are currently enrolled*** in the Master and Doctoral Programs. ***The mission of the PMB Graduate Programs in Public Health is to enhance and protect the health of members of the Uniformed Services by producing knowledgeable and highly skilled public health professionals and by promoting evidence-based policy making, research, and service initiatives that support the global mission of the Uniformed Services.*** The PMB Department has sought to be responsive to the needs of its customers in the DoD and the United States Public Health Service; and, this is reflected in the types of programs and training offered at USU. PMB has continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the Army Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department remains affiliated with the United States Army and Navy Overseas Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. These overseas laboratories provide excellent opportunities for students in the MTM&H Program, which includes a six-week overseas clinical experience in tropical medicine. A research program also exists under an agreement with the Ministry of Health in Belize.

***Demographics of the Graduate Program in Public Health.*** The class composition, as of April 2005, reflects a wide range of backgrounds and experience among the ***50 students*** currently enrolled in either the Masters or Doctoral Programs. The ***27 Masters Degree students in the MPH and MTM&H Programs*** include: 18 Physicians (17 uniformed officers and 1 civilian); 4 Veterinarians (2 Air Force Public Health Officers and 2 Laboratory Animal Medicine Residents); 1 Environmental Science Officer; 2 Aerospace Physiologists; 1 civilian (undergraduate biology major); and, 1 civilian Nurse-midwife. The ***13 students in the MSPH Program*** include 7 Air Force Bioenvironmental Engineers; 3 Health Physicists (2 Air Force, 1 Navy); and, 3 Industrial Hygienists (2 Army, 1 Navy). These programs are designed for students with at least three years of experience in a health-related field. Residents in General Preventive Medicine/Public Health (GPM) and Occupational and Environmental Medicine (OEM) take courses and meet all of the requirements for the MPH or MTM&H Degrees during year one of their residency training. Nine of the 27 MPH/MTM&H students are in the USU GPM or OEM Residency Programs. The ***10 Doctoral students*** include 6 Doctor of Public Health students/candidates (1 uniformed officer, 5 civilians) and 4 Doctor of Philosophy candidates (all uniformed officers). The Program Director can be contacted by e-mail at <*www.usuhs.mil/pmb/pmb.html*>.

***Accrediting Entities.*** Given the mission of USU and the importance of prevention to uniformed medicine, the USU SOM Department of PMB is a large and vital part of the medical school and the University. In addition to accreditation by the ***Middle States Commission on Higher Education*** as a Department within the SOM, the PMB graduate programs are nationally accredited by the ***Council on Education for Public Health (CEPH)***. CEPH is the recognized accrediting body for Schools of Public Health and Graduate Programs in Community Health Education and Preventive Medicine/Community Health. The PMB Graduate Programs were initially accredited by CEPH in 1985 and were last reviewed in 1998. As part of the CEPH report following the last site visit in June of 1998, it was noted that *the values of the institution and the philosophy of military medicine are an exceptionally good fit with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which the program graduates will return after their training. The curriculum is quantitatively-oriented and rigorous*. The PMB Graduate Programs are fully accredited through 2005. Currently, the faculty is in the final stages of a self-study and is scheduled to host site visitors in November of 2005.

The PMB Department has continued to embrace on-going review and evaluation for continuous quality improvement, including efforts to identify measurable program outcomes. *In addition to the rigorous, quantitatively-focused curriculum (60 credit hours), students are required to complete a 108-hour practicum experience, as well as an independent project for the MPH or MTM&H Degrees*. Greater emphasis has been placed on basic research methodology and students are encouraged to present the results of their independent projects at scientific meetings and to prepare manuscripts for submission to peer-reviewed journals. The **Director, Graduate Programs, Colonel Gary D. Gackstetter, DVM, MPH, Ph.D., BSC, USAF, Associate Professor and Vice Chair for Graduate Education, USU SOM Department of PMB,** retired from active duty during 2005.

In response to the CEPH requirement for a practicum or field experience as part of the MPH Program, a new departmental program office was established to direct graduate student activities related to the practicum experience and the required MPH independent project. During their 108-hour practicum experience, students have the opportunity to apply knowledge and skills learned in the classroom within various *real world* settings at public health agencies and other health-related organizations offering practical experiences as a planned, supervised, and evaluated educational activity. **Tomoko (Tonie) I. Hooper, MD,**

**MPH, Assistant Professor, USU SOM Department of PMB,** is the Director of Graduate Research and Practicum Programs; and, she also serves as the Deputy Director for the Department of PMB's Graduate Education Programs.

The USU SOM Department of PMB submitted an application for accreditation from the ***Accreditation Board for Engineering and Technology (ABET)***, a graduate engineering accrediting board, in support of PMB's Environmental and Occupational Health Division Industrial Hygiene and Health Physics Specialty Tracks, in October of 2003; ***the review process was completed in July of 2004 and the program received national accreditation/certification for five years.***

Outstanding Responsiveness to the Continuing Medical Education Requirements of the TriServices.

***The Occupational Ergonomics Program.*** Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, an area of concentration was established, the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program, with faculty involvement from the Department of Medical and Clinical Psychology and the United States Army Center for Health Promotion and Preventive Medicine. The program offers courses in ergonomics, injury control, and health and safety. A number of students have completed their MPH research in this area. Recently, this program conducted a major study with significant health care implications for the military. The research, which focused on how the military manages low back pain, a major public health challenge, indicated that improved integration of ergonomic and psychosocial factors into direct health care actually improves health outcomes while cutting health care costs. ***The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense***;

***The International Health Specialist Program.*** The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the United States Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would have gone more smoothly if members of the Air Force Medical System (AFMS) had language proficiency and more knowledge of the local culture during deployment. The purpose of the IHS Program is to prepare regionally-focused military medical experts who can help to prepare uniformed forces for operational contingencies and the response to medical crises around the world, in wartime and peacetime. The AFMS members may be selected for full time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions are prepared with short courses and rotations, as well as degree programs (i.e., the Master of Public Health (MPH) with a regional, humanitarian assistance, disaster response, or international health focus). A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during October/November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program. ***Four students graduated from the IHS Program, during both 2004 and 2005, for a total of eight graduates***. These students were enrolled in the USU/SOM MPH Program, which gave them a broad didactic experience in public health and preventive medicine. ***The MPH IHS graduates have been assigned as the Deputy Surgeon, United States Southern Command; Chief, Medical Plans and Exercises of Special Operations Command, Central Command; Chief, Horn of Africa Medical Programs, Headquarters, United States Central Command, Office of the Command Surgeon; Chief, Central and***

***South Asia Programs, Headquarters, United States Central Command; and, other significant positions with the IHS teams in the European and Pacific Commands*** (*The PMB Center for International Health provides further information on the IHS Program)*;

***The Ph.D. Program in Environmental Health Science*** was established in response to identified needs within the Uniformed Services. ***As of this time, two Ph.D. Degrees in Environmental Health Science have been awarded, with the first granted in 2003***. Two active duty Naval officers, are currently enrolled in the Ph.D. Program; two active duty officers (1 Navy, 1 Army) will begin this Ph.D. Program in August of 2005;

***The Master of Science in Public Health (MSPH) Program*** has graduated eight degree candidates between 2000 and April of 2005. Thirteen Army, Navy, and Air Force officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; two of these students are expected to graduate in 2005. The students and program faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders**.** ***Past and current projects have included the development of chemical warfare detection methods and instrumentation***;

***The Aviation Physiology Specialty Track in the Master in Public Health Program*** has been offered for the past five years. In addition to Aerospace Operational Physiology I and Aerospace Operational Physiology II, Human Factors in Aviation, and Introduction to Risk Communication, two electives are selected from among the following: Special Topics in Aerospace Medicine; Aerospace Medicine in the Modern Age; Aerospace Exercise Physiology; Aerospace Performance & Health; Joint Medical Operations and Humanitarian Assistance; and, Health Effects of Ionizing/Non-Ionizing Radiation. This course of study prepares students not only for successful negotiation of the Aerospace Physiology Society's Board Certification Process, but also for a career in the military as an Aerospace Physiologist. ***Since 1999, nine students have completed the program and three students have audited it***. With an additional physiologist expected from the Air Force in 2005, further expansion of offerings will continue;

***The TriService Advanced Military Tropical Medicine Course*** has been offered at USU, beginning in 1996, through the Summer of 2004. During 2004, 82 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. ***To date, over 505 students have completed the course***. One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; and, the overseas field missions were attended by 50 medical officers (El Salvador - 10; Bolivia - 10; Peru - 11; Guyana - 11; Cairo - 6; and, Thailand - 2). ***A medical officer used the training received in this course to make the initial diagnosis of malaria during the outbreak of malaria in Joint Task Force Liberia personnel in 2003; an action that very likely prevented disability and saved lives***;

***The Tropical Medicine and Travelers' Health Course*** is offered as a 12-week course during the Spring Quarter of the MPH Program. It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the

qualifying examination in Tropical Medicine and Travelers' Health. ***To date, 37 uniformed medical officers and 14 civilian physicians have completed the course***;

***The Diagnostic Parasitology Course*** is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health related organizations. ***Since 1988, over 300 individuals have taken the course, to include 9 individuals who took the course during 2004***; and,

***Medical Executives Skills Program (MedExec)*** was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the Program. In 2004, three modules were added to the MedXellence Distance Learning Program: Patient Feedback; Executive Management of Clinical Investigation Programs; and, HIPAA. Modules in financial management and modeling, as well as family-centered care, were added to the MedXellence on-site classes. ***Integrating Clinical and Managerial Decisions to Improve Population Health***, a five-day in-class portion of the MedExec Program, is held five times each year throughout CONUS and Atlantic and Pacific TRICARE Regions. ***To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the MHS***.

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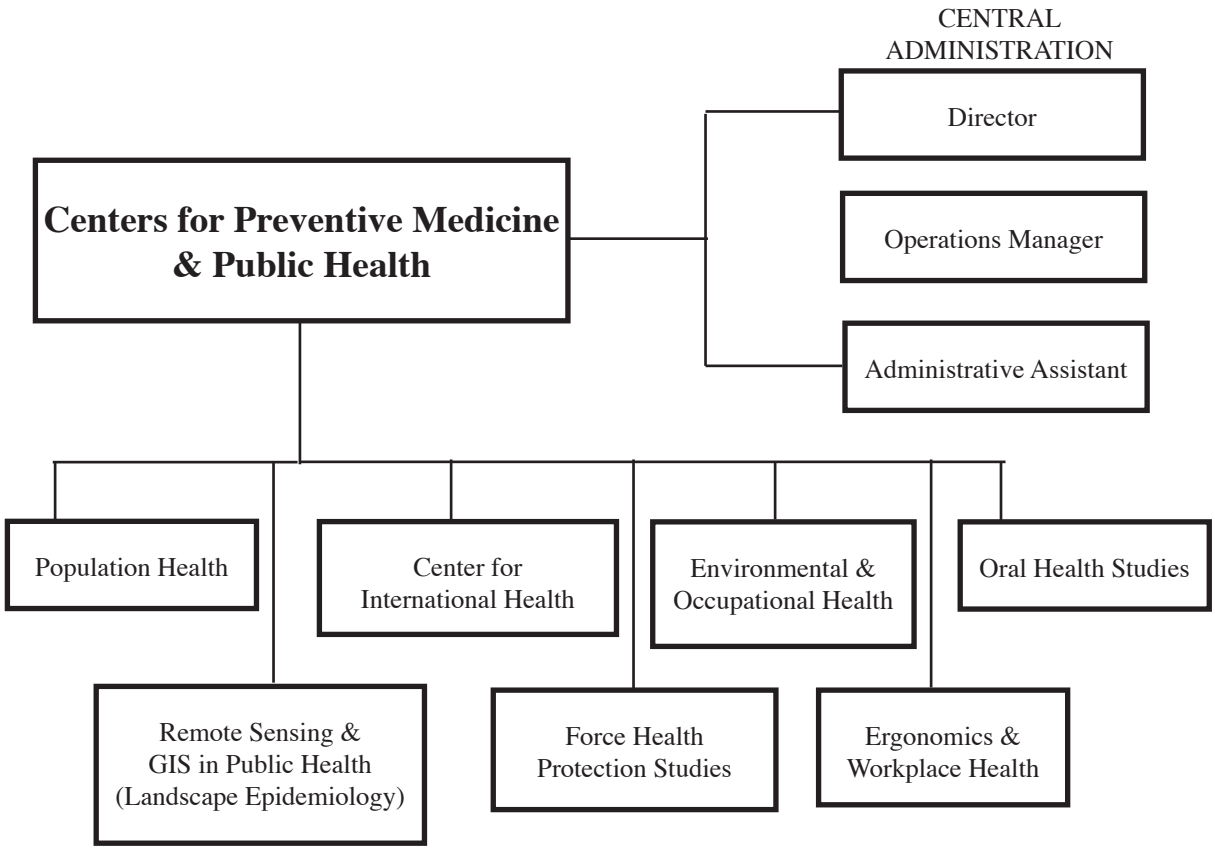
**Centers for Preventive Medicine and Public Health.**

***The Centers for Preventive Medicine and Public Health (CPM/PH) are an entity within the USU SOM Department of Preventive Medicine and Biometrics.*** The seven Centers, under the direction of **Kenneth E. Kinnamon, D.V.M., Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics,** operate under terms of a Memorandum of Understanding with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Centers combine broad expertise in research, consultation, education, training, and clinical preventive medicine and public health; this expertise is used to develop data bases and analytical methodologies, prepare innovative curricula, and evaluate processes and outcomes in clinical practices. The following seven Centers provided consultative, research, and educational services to the TriServices, during 2004:

1) The Center for Application of Remote Sensing and Geographic Information Systems (GIS) in Public Health (Landscape Epidemiology);
2) The Center for Environmental and Occupational Health;
3) The Center for Ergonomics and Workplace Health;
4) The Center for Force Health Protection Studies;
5) The Center for International Health;
6) The Center for Oral Health Studies; and,
7) The Center for Population Health.



**The Center for Application of Remote Sensing and Geographic Information Systems in Public Health (Landscape Epidemiology).**

Background. Remote sensing has an increasingly prominent role in the improvement of public health programs; as a result, a significant number of graduate students in public health are seeking formal training and experience in remote sensing technology. The Center's earlier National Aeronautics and Space Administration (NASA)-supported research and equipment, along with additional equipment provided by a special NASA grant for the purchase of hardware and software, have been used to establish a Center in which remote sensing technology is applied to emerging and re-emerging infectious diseases and environmental health.

Mission. The Center provides faculty expertise and the software and hardware necessary for students and faculty to engage in remote sensing (RS) and geographic information systems (GIS) research projects in public health. ***Donald R. Roberts, Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2004.*** Doctor Roberts is a member of: the American Society of Tropical Medicine and Hygiene; the Society of Vector Ecology; and, the American Mosquito Control Association. He is interested in developing new and innovative models for malaria control and in applied research for testing different approaches to controlling malaria. For many years, he has studied the behavioral responses of malaria vectors to insecticide residues and this research has culminated in a new conceptual model for actions of insecticides in malaria control programs; these efforts have resulted in numerous scientific publications and extensive press coverage. Doctor Roberts continues several lines of funded research, including a National Institutes of Health/National Science Foundation funded research program in Belize on assessing the impact of anthropogenic environmental change on malaria; and, malaria vector ecology. A NASA-funded research program to apply GIS and remote sensing technologies to the study of vector-borne diseases is ending, in 2005. A National Institutes of Health (NIH)-funded program to screen experimental chemicals for use in malaria control is now in its second of five years of funding.

Educational Activities. The Center offers two credit courses, ***Introduction to GIS in Public Health*** and ***Remote Sensing Methods in Public Health***, and non-credit training classes in remote sensing and GIS to students and faculty. Both credit and non-credit courses are taught by **Ms. Penny Masuoka**. Ms. Masuoka has many years of research and teaching experience and is an expert in geographical information systems and remote sensing technologies. The two credit courses taught by Ms. Masuoka cover the basic elements usually taught in remote sensing and geographic information systems (GIS) with emphasis on the areas most relevant to public health (such as classification, raster GIS modeling, and integrating field maps with remotely sensed images). The credit courses, evolved from a combined course, *Remote Sensing and GIS Methods in Public Health*, first presented during the Winter Quarter of 1998-1999, was offered in the Fall Quarters of 1999 through 2003. For the 2004-2005 Academic Year, the course was split into two courses to allow for more development of the individual themes of GIS and remote sensing. The courses cover GIS, spatial analysis methods, remote sensing, and image processing as applied to the field of public health. The goal is to provide students with a combination of theoretical background, example applications in the published literature, and hands-on experience in using hardware and software to enable the students to use the techniques discussed in class in a knowledgeable way in their research and future work in public health. The lectures cover the overview and history of GIS, GIS data structures, entering data into a GIS, geographic analysis, cartographic presentation, applications of GIS to public health, types of remote sensing imagery, image processing, photointerpretation of various imagery types, and application of remote sensing

to public health. The laboratory provides students with hands-on experience in the public health uses of image processing and GIS software. The students and faculty have been enthusiastic about the courses. The GIS course is being offered in the Fall Quarter of 2005 and will be taught by Doctor Nicole Achee. Pending funding, the remote sensing course will be offered in the Winter Quarter of 2005-2006.

***Computer and Equipment Support for Research Activities.*** Recently funded research proposals use the Center computers to perform research. A proposal funded by the National Institutes of Health studies the effect of human-induced change on mosquito habitats in Belize; this project uses Center computers in support of research activities. The Center's printers are being used to assist in the publication of research results from the Center. As the training and course work continue, the Center staff anticipates that students and faculty will be adding new projects to the Center in both infectious disease and environmental health studies.

> **Personnel from an American military medicine university held a workshop this week on malaria vectors, namely mosquitoes, for the Ministry of Health. The sessions covered a range of topics including collection methods for larvae and adults, materials needed to identify malaria carriers, their resistance to insecticides, data management, and display techniques. Eighteen members of the ministry's Vector Control Programme attended the workshop facilitated by the Uniformed Services University of the Health Sciences' Dr. Nicole Achee and John Grieco. Countrywide spraying to control mosquitoes began again last week after a noticeable absence over the past few months.**
>
> - **WWW.Channel5Belize.COM,** *U.S. Team Holds Malaria Vector Training*, June 3, 2005.

Malaria Research in Belize. The Center has continued studies in Belize to apply remote sensing and geographic information systems to the National Malaria Control Program. The Center has been working on malaria in Belize since 1995, with funding from NASA. The Center has received a five-year grant from the National Institutes of Health (NIH) along with the University of California, Davis, to continue its work in Belize. Research under the NIH grant is focused on studying human-induced change, such as deforestation along streams and changes in marsh vegetation due to agricultural runoff, and the effect these changing environments have on the distribution of malaria in Belize. One DrPH student used the historical malaria data collected during the earlier Belize research in her dissertation. Another Ph.D student in Medical Zoology mapped deforestation along rivers under the Belize grant and used this study as part of her dissertation.

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**The Center for Environmental and Occupational Health.**

Mission. The Center for Environmental and Occupational Health promotes excellence in programs focusing on environmental and occupational health by providing research, consultation, education, and training support to government entities and educational institutions. Areas of interest pertaining to environmental and occupational health include: policy; education and training; health risk and hazard assessment standards setting; resource management; regulatory compliance; pollution prevention; and, environmental restoration.

***Colonel Thomas A. Neal, M.D., USAF, MC, CFS, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director of this PMB Center during 2004.*** Colonel Neal is a member of both the American College of Occupational and Environmental Medicine and the American Society for Laser Medicine and Surgery. Doctor Neal instructs in four courses in Graduate Education Programs. He is: the Course Director for both ***Essentials of Toxicology*** and ***Human Physiology***; a lecturer in both ***Safety Engineering*** and ***Environmental Health***; and, an MPH/MSPH Student Advisor for ***Directed Studies & Research***. Within the SOM curriculum, Doctor Neal serves as a lecturer for the second year *Preventive Medicine Occupational Medicine Module*. He is the Principal Investigator on the grant, *Enhancement Through Operational Research of the U.S. Army's Global Preventive Medicine Program*; this is a five-year follow-on research project, from April of 2001 through March of 2006, for the United States Army Center for Health Promotion and Preventive Medicine (CHPPM). During 2004, three articles were published by the Center in peer-reviewed journals and eight presentations were provided by the Center staff at DoD and other Federal organizations.

Research Activities.

***Indian Health Service Education and Training Support Program.*** The principal output of this program is the administration of a one-year Environmental Health Post-Graduate Fellowship on behalf of the Indian Health Service of the United States Public Health Service. **The principal investigator is Major Scott A. Nemmers, USAF, BSC, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

***Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program.*** This project is a follow-on to an original grant initiated in July of 1995, that terminated on March 31, 2001. The original grant consisted of nine separate research initiatives: health risk assessment; health promotion; health hazard assessment; occupational and environmental medicine; environmental compliance and pollution prevention; medical entomology; radiation protection; preventive medicine readiness planning; and, preventive medicine planning and integration. Five research tasks were to be accomplished: conduct a program assessment; develop alternative program change methodologies; develop measures of merit to evaluate alternative methodologies; implement and evaluate the selected methodology; and, publish results. The total funding level was set at $21.362 million. A total of 52 Henry M. Jackson Foundation (HJF) employees were working on the project located at the United States Army Center for Health Promotion and Preventive Medicine (CHPPM), until the project terminated at the end of March 2001. During the five and one-half years of the original project, over 500 publications

were produced, including technical reports and assessments, peer-reviewed and other publications, training session materials, studies, and professional meeting presentations.

Because of the success of the original grant project, CHPPM reinitiated a follow-on project with USU and the HJF that began on April 1, 2001, as a contract effort. Funding, in the amount of $4.2 million for the first year (April 2001 through March 2002) of the follow-on project was received. The follow-on project entitled, *Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program*, is divided into ten study areas: 1) Health Risk Assessment; 2) Health Promotion; 3) Health Hazard Assessment; 4) Epidemiology and Medical Surveillance; 5) Environmental Health and Compliance; 6) Medical Entomology; 7) Radiation Protection; 8) Ergonomics; 9) Clinical Preventive Medicine; and, 10) Informatics. A total of 58 personnel were employed through the HJF for this project (most had worked on the earlier project). At the completion of the first year as a follow-on project, the project was re-established as a new one-year contract effort on April 1, 2002, with four follow-on option years built in. Funding in the amount of $3.2 million was received for the first year of the new contract (April of 2002 through March of 2003); $2.8 million was funded for the second year (April of 2003 through March of 2004). As of September 30, 2003, 31 personnel were employed through the HJF to work on the project, down from the 47 personnel employed on September 30, 2002. The reduction in personnel has primarily occurred through the conversion of HJF employees to temporary CHPPM employees with Civil Service status. **The principal investigators are Robert J. Fitz, Jr., MSPH, MPH, Assistant Professor, USU SOM Department of Preventive Medicine, and Biometrics,** and **Colonel Thomas Neal, M.D., USAF, MC, CFS, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

***Development of Environmental Organic Contaminant Sampling and Analysis Methods.*** This research is funded by the United States Marine Corps Systems Command; the EOH research group studying field-detection methods for military relevant chemicals has been focusing on three areas: field detection methods for military relevant compounds; instrument development; and, training for field chemical detection. **The principal investigators are Commander Gary L. Hook, MSC, USN, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, and Lieutenant Colonel Peter R. LaPuma, USAF, BSC, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

***Field Detection Methods for Military Relevant Compounds***. Research conducted by **Lieutenant Doug Parrish, USN, a Doctoral student,** has focused on the use of a new solid phase microextraction (SPME) method called solid phase dynamic extraction (SPDE) coupled to gas chromatography-mass spectrometry (GC-MS) and a prototype photoionization, quad rupole ion trap, time-of-flight MS as a field expedient method for the detection of unknown chemicals.

**Lieutenant Commander David Koch, USN, an MSPH student,** in conjunction with the Federal Bureau of Investigation (FBI) Forensic Research Laboratory and DDRC-Suffield, has initiated research utilizing a commercially available low thermal mass, resistively heated column for the rapid separation of complex organic mixtures and chemical warfare agents in the field. ***This work has demonstrated the ability to separate and identify a complex mixture of five airborne chemical warfare agents in under three minutes***; this work is continuing to look at forensics aspects of rapid field detection of airborne narcotics. **Captain Nack, USA, an MSPH student,** funded by the United States Army Center for Environmental Health Research, completed research on the use of SPME/GC-MS for the detection of pesticides in water.

***Instrument Development.*** Research is currently underway that will enhance field analytical capabilities through the enhancement of existing equipment and the development of a new, rapid GC-MS. **Lieutenant Commander Rick Erickson, USN, a Ph.D. student,** is leading research focused on the development of smaller and more portable field GC-MS systems for the rapid detection of unknown chemicals in the environment. He is currently performing field evaluations of two prototype instruments for potential use by the United States Marine Corps Chemical Biological Incident Response Force. **Lieutenant Commander Greg Cook, USN, a Ph.D. student,** has recently begun collaborative research with the FBI Forensics Research Laboratory in Quantico, Virginia. ***The focus of this research is to improve the performance of the ion mobility spectrometer (IMS) currently in use at airports across the Nation for the detection of explosives.*** This effort will focus on the improvement of the GC portion of the instrument in order to enhance the chemical separation capability of the instrument and improve the sensitivity to reduce the false positive identifications by the instrument. **Captain Kan, USN, an MSPH student,** is collaborating with Inficon, the manufacturer of the Hapsite portable GC-MS. This effort focuses on the development of an SPME injection port for the Hapsite; this instrument is currently limited to the analysis of samples already in the gas phase. This research will enhance the capabilities of the instrument by enabling it to analyze non-gas phase samples (i.e., aqueous samples). It will also provide the flexibility to gather SPME samples in multiple locations for later analysis while the Hapsite is in use at one location. **Captain Skinner, USAF, an MSPH student,** is working with Air Force and Navy elements in testing the repeatability of the Inficon Hapsite used throughout the DoD as a portable GC-MS. To date, only four instruments have been tested for repeatability performance. Over 70 units will be tested in this study, with 34 chemicals at various concentrations. ***This will allow users to understand the precision and accuracy of a system used to detect chemical warfare agents as well as toxic industrial chemicals***.

***Training for Field Chemical Detection.*** The EOH research group continues to provide focused GC-MS training for military field GC-MS operators. The formal, 12-week GC-MS Course, developed and taught two years ago, is being conducted again for the USMC Chemical Biological Incident Response Force (CBIRF). ***Weekly training evolutions have continued with the CBIRF throughout 2004, as well as faculty and student involvement in CBIRF's live-agent training at DRDC-Suffield***.

***Bioavailability of Chromate Containing Primer Paints.*** *Hexavalent chromium* is the active ingredient used in primer paints to protect metal from corrosion; primer paints are used on nearly all DoD aircraft and ships. Hexavalent chromium is a human carcinogen; and, OSHA proposes to significantly lower the exposure standard prohibiting the use of hexavalent chromium containing paints. However, lung cancer from hexavalent chromium exposure is elevated in most industries except for the painting industry. One reason may be that the paint matrix hinders the release of the ingredient from paint particles. An important parameter in understanding the health effects of a chemical is to determine the amount of chemical released from the inhaled particles. In this research, the fraction of hexavalent chromium released from paint particles into simulated lung fluid will be measured. The simulated lung fluid will be tested for the mass of this active ingredient that dissociated from the particles. The fraction of hexavalent chromium released will be correlated with the particle size to determine if the particle size influences the fraction of hexavalent chromium released.

***Triage and Treatment of Laser Eye Injury on the Modern Battlefield.*** This research will study five task areas:

***Task 1***. The personnel involved with this task will make major equipment purchases, which will include high energy laser sources operating in the 1.3 to 2.0 um spectral region and supporting equipment (i.e., optics, detectors, and analysis equipment). Funding was accomplished in March of 2003; a full-time post-doctoral Fellow and laboratory technicians will dedicate 100 percent of their time to the successful accomplishment of this task (months 1-4).

***Task 2.*** This task will determine *in vitro* and *in vivo* thresholds for injury at 1.3, 1.5, and 2.0 um wavelengths. This information will be used to determine: correlations between the gross appearance of lesions following *in vivo* and *in vitro* exposures (months 4-18); correlations of biomarker expression between *in vivo* and *in vitro* exposures (months 6-20); and, theoretical and predictive models of the biophysical damage mechanisms to tissue from these wavelengths (months 6-24).

***Task 3.*** This task will utilize histomorphometric and biomarker data and other information from Task 2 to develop battlefield treatment techniques for thermal injuries (linear phenomena) at, or near, the threshold for injury. ***Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic***. Special emphasis will be made on contraindicated battlefield treatments (months 12-24).

***Task 4.*** This task will determine thresholds for non-linear phenomena in the cornea. These non-linear effects are expected to be mechanically more disruptive to tissue, causing damage that is consistent with tearing and ripping of tissue rather than the thermal damage expected in Task 2. This information will be used to determine: extent and permanency of tissue damage through *in vivo* and *in vitro* exposures (months 24-36); biomarker correlation between *in vivo* and *in vitro* exposures from the more severe, non-linear effects induced injuries (months 26-40); and, theoretical and predictive models of the biophysical damage mechanisms to tissue from non-linear effects (months 24-40).

***Task 5***. This task will utilize histomorphometric and biomarker data and other information from Task 4 to ***develop battlefield treatment techniques for non-linear injuries significantly above the ED threshold for injury***. Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic. Special emphasis will be made on contraindicated battlefield treatments, with a goal to return the service member to active duty (months 36-48).

As of this report, personnel have been hired and lasers have been purchased to begin testing.

***Health Effects of the 3800 nm Laser.*** This project has yielded a multitude of information in three main areas: artificial skin, pig skin, and human skin reactions:

***Artificial Skin.*** Studies performed with artificial skin were performed in conjunction with the University of Illinois. Histology and gross effects were used to predict the effects of the laser on pig skin. This information provided a starting point for the animal models; the initial ED was ascertained based on this model. Exposures are complete and a manuscript is in preparation.

***Pig Skin.*** A total of ten pigs have been exposed and currently three manuscripts are in preparation regarding the data collected on skin injury thresholds and thoracic injury. This information, in conjunction with the artificial skin findings, will be utilized to help set new standards for skin exposure in the ANSI Z136.1 *Safe Use of Lasers* standard.

***Human Skin.*** The thresholds for human skin sensation of this laser, in order to determine if aversion response is possible, has been partly completed and is being prepared for submission as a manuscript.

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**The Center for Ergonomics and Workplace Health.**

Mission. The Center for Ergonomics and Workplace Health focuses on an integrated approach to ergonomics and occupational health, targeting both the civilian and military workplace. Research in the Center is directed at understanding the interactive roles of medical, biomechanical, organizational, workplace and individual psychosocial factors in the etiology, prevention, and management of prevalent occupational health problems. Currently, the Center conducts research on the mechanisms and management of workplace musculoskeletal disorders and is also involved in education, public policy, and consultation. The Center is a joint effort between the USU SOM Departments of Preventive Medicine and Biometrics *and* Medical and Clinical Psychology. **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology, served as the Director of the Center during 2004.** Doctor Feuerstein is a *Member* of: the National Academy of Sciences and the Institute of Medicine, Panel on Musculoskeletal Disorders and the Workplace; Advisor for the Committee on the Consequences of Uninsurance; the Human Factors and Ergonomics Society; the Association for Advancement of Behavior Therapy; and, the International Association for the Study of Pain. In addition, he has been designated as a *Fellow* by: the Academy of Behavioral Medicine Research; the American Psychological Association; and, the Society of Behavioral Medicine. During 2004, eight articles were published in peer-reviewed journals and seven presentations were provided by the Center staff at national and international organizations.

Research Activities.

***Patient Satisfaction, Cost and Treatment Guidelines: Musculoskeletal Disorders.*** The premise for developing treatment guidelines is to improve health care outcomes and costs for the disease, injury, or disorder that is addressed, using existing standards of care. The DoD and the Department of Veterans Affairs (VA) have developed treatment guidelines for a number of health problems. Among the existing treatment guidelines are standards for treating low back pain; however, no DoD/VA guideline exists for the treatment of upper extremity pain. It is currently unclear what effect the existence and implementation of these guidelines, as well as compliance with these guidelines, would have on patient satisfaction, functional outcomes, or perceived health and health care costs. This study has two aims: 1) to determine trends in provider compliance with these guidelines both across years and within an episode of care; and, 2) to compare the patient satisfaction and perceived health outcomes from the Health Care Survey of DoD beneficiaries and the administrative data on functional outcome and health care costs for active duty personnel, retirees, and dependents with low back pain diagnoses (disorders for which there is an existing treatment guideline) in contrast to those with upper extremity diagnoses (not addressed with a treatment guideline at this time). These comparisons will examine the role of guideline compliance and highlight any benefits gained from the existence and implementation of treatment standards. This study is funded by the Epidemiology Health Program Analysis and Evaluation Branch of the TRICARE Management Activity (Department of Defense) and Veterans Affairs. **The principal investigator is Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology.**

***Prospectively Identifying Patterns of Ergonomic and Work Organization Risk Factors for Musculoskeletal Disorders.*** **Grant D. Huang, Ph.D., MPH, Assistant Professor, USU SOM Department of Medical and Clinical Psychology,** and his colleagues have identified back and upper extremity disorders to be the major sources of lost time and clinic visits in the United States Marine Corps. While there has been an increasing number of studies that have identified risk factors for work-related musculoskeletal

disorders, no prospective studies have examined combinations of ergonomic and specific work organization factors related to time pressure, cognitive demands, interpersonal demands, and participatory management. The aims of the present study are to: 1) determine the incidence of diagnosed low back and upper extremity disorders among enlisted Marines; and, 2) delineate ergonomics and specific work organization risk factors for such musculoskeletal outcomes at six and twelve months through a post- baseline questionnaire. Follow-up data on ICD-9 musculoskeletal-related diagnoses recorded at clinic visits will be obtained from a medical administrative database. This investigation represents a key next step in a series of studies designed to develop an innovative secondary prevention program for work-related low back and upper extremity-related disorders. ***In particular, findings may shed light on those ergonomic factors and specific dimensions of work organization to be targeted in prevention efforts***. Furthermore, the prospective nature of this research can potentially provide insights into mechanisms for musculoskeletal outcomes and assist in reducing burdens associated with health care utilization, financial costs, and lost productivity. This study is funded by the Johns Hopkins NIOSH Education Research Center. The principal investigators on this study are **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology,** and **Grant Huang, Ph.D., formally at the USU SOM, currently at the Veterans' Affairs (VA) Headquarters, in Washington, D.C.**

***Workstyle Intervention for the Prevention of Work-Related Upper Extremity Problems*.** Work-related upper extremity disorders (WRUEDs) are a considerable source of distress and disability in the modern workforce. Research has identified that physical risk factors (i.e., workplace ergonomic design and biomechanical motions required by the task, etc.), psychosocial risk factors (i.e., workplace stress, workload, etc.), and personal risk factors (i.e., individual coping style, appraisal style, medical history/ status, etc.) all play a role in the development, exacerbation, and maintenance of WRUEDs. However, prevention methods often focus on the modification of only one of these risk factors (i.e., ergonomic redesign only or on individual stress management only). ***Recent investigations using combined approaches (i.e., ergonomic redesign and individual stress management) show promise for increasing the effectiveness and durability of intervention benefits*.** Work style is a description of how people perform their work and is proposed as a mechanism by which ergonomic and psychosocial stressors in the workplace interact with the individual's response style to place a worker at risk for the development and/or exacerbation of WRUEDs. Inclusion of work style related interventions into workplace WRUED prevention (primary and secondary) programs may result in better overall treatment gains. This study is a randomized controlled trial of workplace intervention for the secondary prevention of work-related upper extremity symptoms and functional limitations. Symptomatic workers will be assigned to one of four treatment conditions: ergonomics-only (current standard practice); work style only (investigation of cognitive-behavioral modification of how individuals perform work); work style and ergonomics combined condition; and, wait-list control. Measures of ergonomic risk, psychosocial stress, work style response, and symptom status were collected at baseline, post-treatment, and at a three-month follow-up; they will also be collected at the 12-month period. The aim of this study is to determine if the addition of work style related interventions result in positive outcomes. The findings may enhance the development of effective workplace programs to prevent WRUEDs. Findings at three months indicate non-specific effects have led to improvements over time for all groups with no significant differences across treatment modalities. Findings at 12 months will be reported later this year. This project is funded by the Office Ergonomics Research Committee and will be conducted in collaboration with the CNA Insurance Company in Chicago, Illinois. **The principal investigators are Captain Rena Nicholas, M.S., Graduate Student Associate, USU SOM Department of Medical and Clinical Psychology,** and **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology**.

***Work Productivity in Cancer Survivors: Brain and Breast Cancer.*** Consistent with the mission of the Center, the researchers are examining cancer survivorship and work. The survival rates of many types of cancer are increasing and there is now a greater focus on optimizing long-term function. While the management of cancer is primarily directed at lowering patient mortality, problems often remain as a result of the long-term neurotoxic consequences of some of the cancer treatments, especially in those living longer. Return to work and productivity measures while at work could, in part, be affected by these neurotoxic effects. There is a need for studies that investigate the multiple factors that may be associated with return to work and work productivity in cancer survivors. This type of investigation can not only lead to a better understanding of the role of such factors as neuro-cognitive limitations, fatigue, and mood, but can also help to implement effective accommodations that can more precisely assist cancer survivors. The present study is an investigation of cancer survivors' return to work, lost work time, and work productivity. More specifically, it is designed to delineate the impact of cognitive limitations on work outcomes while controlling for disease, treatment type, health behaviors, fatigue, quality of life, mood, cognitive limitations and problem solving. This research will help guide future interventions efforts to improve work reintegration in cancer survivors. **The principal investigator is Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology**.

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**The Center for Force Health Protection Studies.**

Mission. The Center for Force Health Protection Studies conducts a comprehensive research program on the short- and long-term health outcomes associated with military operational environments, in particular, the conditions and experiences associated with training, deployment, combat, and humanitarian and disaster relief operations. The Center promotes the use of a systematic process to evaluate disease and non-battle injuries in military and veteran populations for guiding health policy development. ***The Center's goal is to enhance the scientific knowledge base for military deployment health and to develop recommendations for preventive health interventions***. The research focus is on studies that collect, manage, and integrate health-related data for purposes of risk assessment and risk communication to protect individuals who serve the Nation during peacetime and during war. The Center develops databases, analytic methodologies, and models for predicting health outcomes, as well as for identifying, evaluating or designing specific interventions for preventing injury and illness. The Center also participates in interagency collaborative research programs. Finally, it provides consultative services to program managers and executives in the health-related components of the DoD, the Department of Veterans' Affairs, other Federal agencies, local governments, and private organizations. **Tomoko I. Hooper, M.D., MPH, FACPM, Assistant Professor and Director, Graduate Research and Practicum Programs, USU SOM Department of Preventive Medicine and Biometrics, is the current Center Director.** Doctor Hooper is board-certified in General Preventive Medicine/Public Health and is a Fellow of the American College of Preventive Medicine. She also maintains *Diplomate* status with the American Board of Preventive Medicine, General Preventive Medicine/Public Health. Doctor Hooper is a Co-Course Director in three PMB Graduate Education Courses (***Introduction to the MPH Project and Practicum***, ***MPH Project/Practicum Design and Development***, and the ***MPH Project/Practicum Implementation and Evaluation***; in addition, she serves as the Course Director for ***Public Health Practicum*** and the ***MPH Independent Project***. During 2004, fourteen articles were published in peer-reviewed journals by the Center staff.

Research Activities During 2004.

***The focus of this Center on studies related to force health protection continues to be reflected in the various on-going and planned collaborative research activities within the Center***. Although the research collaboration under a Cooperative Agreement with the DoD Center for Deployment Health Research at the Naval Research Center (NHRC) has ended, the Center will continue its collaboration with NHRC researchers on the Millennium Cohort Study, as well as other projects of importance to force health protection. These studies and others continue to add to the scientific knowledge base on a wide range of military and public health related topics, including epidemiologic methodology for population-based studies, injury outcomes and prevention, as well as the health effects of exposures and experiences associated with military service, particularly deployment.

***The Millennium Cohort Study.*** **Colonel Gary D. Gackstetter, DVM, Ph.D., USAF, BSC, Associate Professor, USU SOM Department of Preventive Medicine and Biometrics,** and **Tomoko I. Hooper, M.D., MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics,** are among the seven co-investigators on this landmark study. The Millennium Cohort Study is the largest prospective study in military history and one of the largest cohort studies ever undertaken in the United States. Initial data collection for the baseline cohort began in July of 2001. The probability-based sample of invited participants was established from service rosters as of October 1, 2000, and included all

United States military personnel serving in the Army, Navy, Coast Guard, Air Force, and Marine Corps. Enrollment was nearly 80,000 at the close of the initial enrollment phase. Additional accession cohorts, of approximately 40,000 in 2004 and 20,000 in 2007, will be added for a total of 140,000 individuals to be followed through 2022.

***A Nested Case-Control Study of Fatal Motor Vehicle Crashes Among Gulf War Era Veterans.*** This collaborative project involving researchers from the VA and DoD (USU and NHRC) is in the final stages of analyses related to the recommendations made at the time of the annual American Institute of Biological Sciences (AIBS) Scientific Peer-Review of Federally Funded Health Protection Studies in February of 2003. The expanded analytic data set includes data on pre-deployment hospitalization, potential exposure to the demolition plume at Kamisiyah, and separation from military service (including the reason(s) for separation). Possible interactions between military unique variables and other risk factors for motor vehicle crashes are specifically being examined. A manuscript entitled, *Leveraging Existing Databases to Study Vehicle Crashes in a Combat Occupational Cohort: Epidemiologic Methods*, was recently published in the American Journal of Industrial Medicine; two other manuscripts have been submitted to peer-reviewed journals. ***Morbidity and mortality related to motor vehicle crashes is of major concern to the military, particularly as the risk of fatal motor vehicle crashes is increased among service members returning from deployment.***

***Assessing the Potential Health Impact of the Gulf War on Saudi Arabian National Guard (SANG) Members and their Dependents.*** This multi-agency international collaboration involving investigators from the Centers for Disease Control and Prevention; the King Abdul Aziz Medical City (formerly King Fahad National Guard Hospital) in Riyadh, Saudi Arabia; the Naval Health Research Center; and USU will come to a close at the end of Fiscal Year 2005. Two manuscripts have been published: *Assessing the Potential Health Impact of the 1991 Gulf War on Saudi Arabian National Guard Soldiers* (International Journal of Epidemiology) and *Saudi Arabia - United States Collaboration in Health Research: A Formula for Success* (American Journal of Infection Control). Under the direction of the Deployment Health Support Directorate, Office of the Assistant Secretary of Defense for Health Affairs, the Center is also conducting a study of health outcomes among United States service members who were deployed to the 1991 Gulf War and were still on active duty as of September 1994. This study is being done in collaboration with NHRC.

***Descriptive Analysis of Injuries and Illnesses in United States Military Members During Operation Iraqi Freedom.*** This Health Affairs-directed study of in-theater medical events is well underway with respect to data acquisition and preliminary analyses. A graduate student and Navy Occupational and Environmental Medicine Resident worked with Center personnel to analyze data on aeromedical evacuations from the Operation Iraqi Freedom Theater of Operations. A manuscript entitled, *Aeromedical Evacuations from Operation Iraqi Freedom: A Descriptive Study*, was published in Military Medicine.

***Analyses of Non-Fatal Motor Vehicle Crashes in the Military Population.*** Two interagency agreements were recently established, one with the National Highway Traffic Administration and the other with the National Institute for Occupational Safety and Health, to continue studies of motor vehicle crashes. These studies will involve analyses of non-fatal motor vehicle crashes in military populations.

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**Center for International Health.**

Mission. The purpose of the International Health Specialist (IHS) Program is to prepare regionally-focused military medical experts who can help to prepare uniformed forces for operational contingencies and the response to medical crises around the world, in wartime and peacetime. The AFMS members may be selected for full time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions will be prepared with short courses and rotations, as well as degree programs (i.e., the Master of Public Health (MPH) with a regional, humanitarian assistance, disaster response, or international health focus).

A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during October/November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program. **Colonel Martha Turner has been the Program Director of the IHS Program at USU**, since February of 2003; and, **Lieutenant Colonel Rebecca Schlick, has been the Deputy Program Director**, since September of 2003. They are billeted at the 311th Human Systems Wing, Brooks City Base, and assigned at USU.

The International Health Specialist Program. The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the United States Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would have gone more smoothly if members of the Air Force Medical System (AFMS) had language proficiency and more knowledge of the local culture during deployment. It was believed that because medics serve as instruments of international policy, they should be provided the opportunity to become more culturally aware and language proficient.

*Four students graduated from the IHS Program, during both 2004 and 2005, for a total of eight graduates*. These students were enrolled in the USU/SOM MPH Program, which gave them a broad didactic experience in public health and preventive medicine. In addition to the MPH requirements, the IHS students completed additional international health courses and an additional Air Force International Training (AFIT)-sponsored second year for structured experiences and projects with various organizations involved in international health. They received quality-assured knowledge from an impressive array of courses such as Epidemiology, Biostatistics, Environmental Health, Health Services Administration, Social and Behavioral Sciences, International Health, Medical Anthropology, Joint Medical Operations and Humanitarian Assistance, Public Health Issues in Disasters, Historical Perspectives of International Health, Program Planning & Development, Principles of Healthcare Management, Decision Making in Health Services, Principles and Practice of Tropical Medicine, Malaria Epidemiology and Control, Travel Medicine Practicum, and Deployment Environmental Exposures. ***The MPH IHS graduates have been assigned as the Deputy Surgeon, United States Southern Command; Chief, Medical Plans and Exercises of Special Operations Command, Central Command; Chief, Horn of Africa Medical Programs, Headquarters, United States Central Command, Office of the Command Surgeon; Chief, Central and South Asia Programs, Headquarters, United States Central Command; and, other significant positions with the IHS teams in the European and Pacific Commands***. In their positions, these graduates frequently interface with local and international health authorities in efforts to establish working relationships, advance interoperability, and prepare medical missions in support of their commands' Theater Security Cooperation Plan.

Student Activities During 2004/2005. *In 2004/2005, IHS students participated in humanitarian assistance missions in Thailand, Kenya, and Ethiopia*; and, they did practicum work at various governmental and non-governmental organizations. For example, ***Captain Cogswell, an IHS student,*** *had a two-month internship at the Asian Disaster Preparedness Center, in Bangkok, Thailand*; he also participated in a humanitarian mission in Korat, Thailand, and attended the International HIV Conference, in Bangkok, Thailand. Captain Cogswell successfully completed both a Thai Enhancement Course at the Diplomatic Language Services and the Defense Language Proficiency Test, in the Thai language. ***Major Selent, another IHS student,*** *worked at the Pentagon in the Special Operations Low Intensity Conflict (SOLIC) Office* under the mentorship of CAPT Ken Schor; and, she also assisted the Response Medical Team (RMT) at the Office of Foreign Disaster Assistance (OFDA) following the Tsunami Disaster, under the mentorship of CAPT Ken Schor and Mr. Steve Caitlin. She completed her internship at OFDA, in March of 2005. Additionally, Major Selent participated in French Courses at the National Institutes of Health, USDA, and at the Diplomatic Language Services in Washington, D.C., and LaRochelle, France; she successfully passed the Defense Language Proficiency Test. ***Major Brian Moore, IHS student,*** *participated in several military missions in Nepal, Ethiopia, Kenya, and Florida; he also attended a Course in the Law of Armed Conflict, in Spiez, Switzerland*. In addition, IHS students have attended several courses at the National Foreign Affairs Training Center, the Joint Special Operations University at Hurlburt Air Force Base, Florida, and at the Brooks City-Base and Sheppard Air Force Base training sites.

Staff Activities During 2004/2005. Colonel Turner and Lieutenant Colonel Schlick participated in several activities supporting global health educational initiatives. Among them, participation in the Law of Armed Conflict Course, in Spiez, Switzerland; presentation of posters and papers at the 35th International Congress of Military Medicine (ICMM), held in Washington, D.C.; consultation on MPH education programs in India; the ICMM Scientific Review Panel; the USU Faculty Development/Education Series; the Centers for Preventive Medicine and Public Health; Coordination of International Health I & II, Medical Anthropology, the Seminar on Historical Perspectives in International Health, and Ethics in Public Health; and, hosting of military and civilian educators from American, European, and Central Asian States. Colonel Turner's research on *Aeromedical Evacuation of Combat Casualties Post 9/11* was completed in September of 2005; the analysis of the data from the deployment experience in Iraq is on-going.

Colonel Turner continues her consultation work in India, in support of the initiative to develop MPH programs in several academic settings. The military and military/civilian meetings provided opportunities for the exchange of information and laid a foundation for further collaboration. One of the highlights of her trip to India was the signing of a memorandum of understanding between the Indian Army and USU at a formal ceremony attended by United States Embassy officials and the senior leadership of the Indian Ministry of Defense. She also visited Viet Nam and attended The Asia Pacific Military Medical Conference in Hanoi, Viet Nam. *Colonel Turner presented two posters; one on the Distance Learning Course Initiative,* ***Public Health Issues in the International Environment****, developed by the International Health Program*. The second poster described the findings from a TriService Nursing Research Study on Aeromedical Evacuation since 9/11. A podium presentation on Military Nursing was a joint effort between the United States and Australian military nurses. All presentations were well attended. Other topics of interest included working with several member nations to develop military-focused educational tracks within academic health care settings. Colonel Turner will return to Viet Nam, in December of 2005, in conjunction with a Military Nursing Education project.

*The 21-module Distance Learning Course Initiative, Public Health Issues* ***in the International Environment,*** *was pilot-tested in April of 2005*. The initiative is a web-based educational activity sponsored by the United States Air Force School of Aerospace Medicine (USAFSAM)/International Health Program (IES), and USU. Its target audience includes medical, dental, biomedical science, and medical service officers, nurses, medical technicians, and associated personnel who anticipate future deployment and desire foundational knowledge or refresher training. It is planned to have this initiative fully integrated into the Air Force Integrated Learning Center, during 2005. The registration site course is open to all DoD personnel (Active Duty, Guard, Reserve, and civilians) who are registered in the DEERS database.

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**The Center for Oral Health Studies.**

Mission. The Center for Oral Health Studies is chartered by the TriService Dental Corps Chiefs Council to provide research and data collection services relating to the provision of dental care to all beneficiaries in the Department of Defense. The Center gathers, synthesizes, and distributes management information needed to develop oral health care policies and programs necessary to optimize the oral health of DoD beneficiaries and the operational dental readiness of service members. The Center provides consultative services to students and other faculty at USU regarding oral health research topics, general dental and oral health subjects, and data sources relating to dental care in the military. **Andrew K. York, DMD, MPH, CAPT, DC, USN, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, continues to serve as the Director of the Center for Oral Health Studies.** CAPT York is licensed to practice dentistry in both Kentucky and Virginia. He holds *Diplomate* status with the American Board of Dental Public Health; and, he is a Member of the American Dental Association and the American Association of Public Health Dentistry.

Center Activities.

The Center's ***TMA-funded Dental Patient Satisfaction Program continued to be the military's sole source for assessing the satisfaction of patients with military dental care***. The Center received, compiled, and analyzed over 12,000 patient satisfaction survey forms each month, from military dental clinics worldwide. The staff developed and disseminated over 250 individual dental clinic reports each fiscal quarter. These quarterly reports allow clinic directors to identify specific areas for improvement leading to better service and patient satisfaction across the system. The DoD Dental Patient Satisfaction Program continues to be an integral part of the overall Military Health System (MHS) performance assessment.

A new, dynamic, web-based reporting system for the DoD Dental Patient Satisfaction Program was completed and deployed in early 2005. The system enhances the end-users' ability to identify areas of dissatisfaction among their patients. Since the reports are based on a representative sample of patient visits to each dental treatment facility, information regarding patient demographics and patient reported access to care are also provided.

In conjunction with members of the United States Air Force Surgeon General's dental staff, the Center developed the ***Dental Corps Optimization Manning Model***. It is currently being used to redistribute Air Force dental manpower based on the results of the Center's 2003 Dental Treatment Needs Survey.

The Center collected and analyzed patient encounter data collected by Air Force dental personnel while deployed in support of Operation Iraqi Freedom. Types of treatment required and the demographics of those patients requiring battlefield care were provided to the Office of the Air Force Surgeon General.

***The Center continues to play a key role in the development of the reporting system and metrics for the dental module of the Military Health System's Composite Health Care System II (CHCH II)***. This future electronic dental record is slated to replace the paper dental records currently used across military medicine and will fully integrate dental and medical patient information.

***The Center staff continued to play key roles in corporate military dentistry, as the primary source of military dentistry health services information***. The Center's staff are members of many Integrated Product Teams (IPTs) associated with military dentistry, to include the following: the TRICARE Management Activity (TMA) Remote Active Duty Dental Program IPT; the TMA MHS Survey Workgroup; the TMA Reserve Dental Readiness IPT; the TMA CHCS II Dental Metrics IPT; and, the Air Force Personnel Reliability Program IPT. The Center staff also sponsored and organized the military session of the annual meeting of the American Association of Public Health Dentistry.

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**The Center for Population Health.**

Mission. The Center for Population Health is an integral part of the research, service, and educational activities of the Division of Health Services Administration in the USU SOM Department of Preventive Medicine and Biometrics. *The Center* ***provides expertise and experience in assessing*** *the quality of care for populations* ***and analyzing*** *large databases to determine trends in population health, the efficiency and effectiveness of care delivery, and the relationship of practice patterns to outcomes*. The Center also develops innovative educational curricula and provides training to Federal health care executives and managers to create, manage, and improve high quality systems. Using the skills and expertise of its personnel, *the Center also* ***provides consultation and assistance in health care quality assessment, performance improvement, and policy analysis***. **Galen Barbour, M.D., FACP, FACHE, Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2004.** Doctor Barbour is a Member of the following organizations: the American Federation for Clinical Research; (Member and Fellow of) the American College of Physicians; the American Heart Association; the American Society of Nephrology; the American Society for Artificial Internal Organs; the Society of the Sigma Xi; Alpha Omega Alpha; the American Institute of Nutrition; the American Society for Clinical Nutrition; and the American College of Healthcare Executives.

Center Activities. The Center is specifically *designed to enable Federal health care providers and administrators to access comprehensive, integrated, population-based performance information to facilitate quality improvement and cost reduction and demonstrate the value and power of the combined Federal health care systems to the American Public*. The following was included in the Center's summary report for 2004:

***Education and Training*.**

***The Medical Executive Skills Program (MedExec).*** The Medical Executive Skills Program (*MedExec*) was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the program.

***Integrating Clinical Managerial Decisions to Improve Population Health.*** This five-day, in-class portion of the *MedExec* Program is held five times each year throughout the continental United States and the Atlantic and Pacific TRICARE Regions. ***To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the Military Health System*.**

***MedXellence Distance Learning Program.*** The MedXellence Distance Learning Program is an integral part of the *MedExec* Program. Several of the previous presentations have been developed into distance/distributed learning formats and are presented prior to the formal on-site class via web-based mechanisms. Learning accomplishments of the presentations are measured and reflected in the changes seen from a pre-test and post-test analysis using qualitative questions derived from the material in the on-site and web-based presentations. Implementation and evaluation of the MedXellence Distance Learning Program was expanded to include on-line modules. ***During 2004, three modules were added to the MedXellence***

***Distance Learning Program: Patient Feedback; Executive Management of Clinical Investigation Programs; and, HIPAA.*** The Center added an additional session during 2004, presenting at five sites throughout the Continental United States and the Atlantic and Pacific Theaters. Modules in financial management and modeling, as well as family-centered care, have also been added to the MedXellence on-site classes.

***Research Activities.***

***California Active Duty Tobacco Use Study.*** The Center completed the California Active Duty Tobacco Use Study in August of 2004, and reported the results to the Department of Health Services for the State of California. The Center results showed, among other things, that compared to similar California civilian subpopulations, active duty males ages 18-34 reported smoking twice as much, and that active duty females over the age of 45 reported smoking only two thirds as much. Active duty personnel are very aware of the dangers of tobacco use; and, they report smoke free environments at home and at work more often than their civilian counterparts. Based on these and other findings, the Center made recommendations concerning smoking cessation efforts that the California Department of Health Services could use to reach the military stationed in California.

***Medicare Database.*** Final data analysis on three chronic disease cohorts from the Medicare database has been completed; and, a manuscript is in preparation. In addition, data analysis is proceeding for three surgical procedures.

***Pediatric Bioterrorism Preparedness.*** The Center for Population Health received funding in the amount of $2 million from the Health Resources and Services Administration (HRSA) to study bioterrorism preparedness in the United States health care infrastructure. HRSA has requested that the Center evaluate exemplary practices in pediatric preparedness, as part of the Center's Bioterrorism grant. First, the Center was asked to compile a set of exemplary practices in pediatric preparedness and to write a report on those efforts, using a case study approach. The report was completed in December of 2004, and made available at a conference for HRSA awardees. In addition, the Center was asked to evaluate, during the Summer of 2005, to what extent those initiatives have been put into place in other states or localities. The Center is working with an advisory panel of experts in pediatric bioterrorism preparedness to identify exemplary initiatives, conduct site visits, and prepare the report. Second, working with the same advisory panel, the Center will construct a guidebook for pediatric bioterrorism preparedness that is planned for nation-wide distribution to assist states and health care organizations in their efforts.

***Cancer Epidemiology.*** Preliminary results of the national epidemiological study of cancer for the United States Military Cancer Institute have been obtained and are driving re-extraction of some data elements and new analysis activities.

***Student Research.*** The Center personnel are currently advising one MPH student project; this project will involve addressing the Military Health System (MHS) database through existing Center data use agreements within the MHS; and, it opens a viable avenue for future research.

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**The USU School of Medicine Department of Military and Emergency Medicine and the Casualty Care Research Center.**

**The CCRC Mission is to serve as a unique national resource by providing quality research, education, and expertise in the delivery of good medicine in bad places.**

- Mission Statement Approved by the President, USU, 1995.

Establishment and Mission. The Casualty Care Research Center (CCRC) was established in July of 1989, under the USU SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research.

In keeping with the overall mission of USU, the scope of the CCRC activities have historically included the following: 1) conducting research and investigations on issues relating to injury control, casualty care, and operational and disaster medicine; 2) providing a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas to medical students, graduate physicians, and other uniformed medical personnel; 3) serving as a repository of resources and information relating to injury control, injury epidemiology, and operational medicine for the Uniformed Services; and, 5) providing research, resource and educational support, technical assistance, and other community service to USU, the Uniformed Services, and other Federal, State, and local elements.

With the creation of the Department of Homeland Security, it became clear that the role of bridging the gap between DoD and civilian emergency responders for the coordination and sharing of critical, operational medical knowledge, technology, and expertise could be more effectively executed by partnering with the new Department. In October of 2004, USU stood down most of its CCRC, while the Department of Homeland Security, Immigration and Customs Enforcement, Federal Protective Service, established the Special Operations Division, Protective Medicine Branch to assume many of those responsibilities, including operational support to Federal law enforcement and most of the educational programs originally developed by the CCRC. USU now has a strong new partnership with the Special Operations Division, Protective Medicine Branch and works jointly to ensure continued benefit to DoD, particularly in education and research.

The Center operates on both extramural and appropriated funding; the CCRC is currently staffed by a medical officer and a non-commissioned officer (NCO) who serve as liaisons to the Special Operations Division, Protective Medicine Branch, and focus primarily on resident physician and medical student education, capturing lessons learned in defending the homeland, and medical research of mutual benefit and interest.

Core Military Competency. The location of the CCRC within the multi-Service environment of USU, with its emphasis on education and development and scientific studies is critical to the development and sustainment of the CCRC's ability to maintain its core competency - *the capability to provide military-unique, medical expertise and experience required by both uniformed and civilian emergency/health care responders to weapons of mass destruction (WMD)-related and other national security contingencies*. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in

these areas. USU, through its students in the School of Medicine and the Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers. The University ensures continuity and leadership for the MHS; and, the CCRC's core competency plays an essential role in that equation.

Contributions to Homeland Security - The Counter Narcotics and Terrorism Operational Medical Support Program. Since 1989, the CCRC has successfully served as a bridge between DoD and Civilian Emergency Responders for the coordination and sharing of critical, operational medical knowledge, technology, and expertise. Initially, this CCRC Program was a cooperative effort between USU, the Department of Defense Office of Drug Enforcement Policy and Support, the Henry M. Jackson Foundation for the Advancement of Military Medicine, and the Department of Interior, United States Park Police Special Forces Branch. From 1990 through 2001, the CCRC Program was continuously funded by the Office of Drug Enforcement Policy and Support, which reported through the Assistant Secretary of Defense for Special Operations/Low Intensity Conflict. Responsibility for this program was transferred, in October 2004, to the Department of Homeland Security's Office of Protective Medicine; however, USU's CCRC will continue to contribute expertise and academic input to ensure continued military relevancy and access for DoD personnel requiring this training.

The Counter Narcotics and Terrorism Operational Medical Support Program focus is on the crisis management response to: *weapons of mass destruction (WMD); counter terrorism; protective operations; hostage rescue; explosive ordnance disposal; maritime operations; civil disorder; and, major national security events*. Prior to its transfer, this program had trained over 6,000 civilian emergency personnel from 750 agencies through collaborative support agreements with law enforcement organizations from all 50 States, the District of Columbia, Guam, Puerto Rico, the United States Virgin Islands, England, Denmark, and Canada. Forty local, State, and Federal law enforcement agencies mandate this certification-based training as a condition of employment for their SWAT medics.

The Program provides *military-relevant, national standard, assessment-driven curricula; certification; and, a quality assessment process* that exist nowhere else. Its unique Special Operations Injury Epidemiology Database, the only database of its kind, ensures both effectiveness and relevance during the generation of assessment-driven curricula; and, it provides information and data for research on injuries incurred during the crisis management of domestic contingency operations.

The CCRC has received multiple testimonials from faculty and students who attribute their success in planning medical support for the deployment of military units in the field directly to knowledge gained at the CCRC.

***The location of the CCRC within the University and its strong liaison with the Department of Homeland Security ensures academic oversight and credibility for the Congressionally mandated collaboration between DoD and the civilian emergency personnel community.***

WMD Scientific Training Programs. The CCRC provided a family of seven WMD medical educational programs to meet the needs of a variety of communities over the past year. These included: ***Responding to WMD for Health Care Facilities***; ***Responding to WMD for Public Safety Personnel***, ***Responding to WMD for Health Care Providers***, and ***WMD Awareness: What Everyone Needs to Know***. These programs have been highly acclaimed because of their effectiveness and efficiency. The

public safety programs will be continued by the Department of Homeland Security's Special Operations Division, Protective Medicine Branch and CCRC's efforts will be devoted to developing on-line training for emergency medical services.

The Wound Data and Munitions Effectiveness Team (Vietnam) Database (WDMET) - A Unique Resource. The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) was maintained by the CCRC and remains a USU asset. It contains information on the tactical engagement, weapons employed, resulting injuries, and treatment in the pre-hospital and hospital environments on approximately 8,000 combat casualties. ***It is the only collection of its kind in the world.*** Photographs, medical records, X-rays, recovered bullets and fragments make this a unique resource, which has been studied extensively, resulting in numerous scholarly publications since the establishment of the Center. Most recently, the WDMET data has been used to support the *Persistence in Combat Project*, which is sponsored by the Defense Advanced Research Project Agency (DARPA). This database is currently housed by USU, but there are no support staff to facilitate access to this historically valuable set. Further evaluation will be undertaken to determine if USU wishes to maintain the WDMET in its collection.

CCRC Mission Support Center and Operational Medical Support. The activities of the Mission Support Center have been assumed by the Department of Homeland Security's Special Operations Division, Protective Medicine Branch. Through a collaborative agreement, USU retains access to the Mission Support Center for teaching and research purposes.

CCRC Emergency Medicine Resident Rotation. The CCRC's Emergency Medicine Resident Rotation in Operational Medicine Course, initiated in 1992, is a four-week elective for military emergency medicine residents. One Hundred and nine active duty emergency medicine residents, six active duty staff physicians, six civilian physicians, and three physician assistants have completed the course. It consists of successful performance in the one-week Counter Narcotics and Terrorism Operational Medical Support (CONTOMS) Program EMT-Tactical School, when it is available, followed by temporary duty at the CCRC and the Special Operations Division, Protective Medicine Branch. While assigned to the CCRC, the emergency medicine residents deploy on actual support missions, complete short research projects, and generate *white papers* on topics such as antibiotic selection, malaria prophylaxis in high risk special operations, and field laboratory diagnostics for chemical, biological, and radiological incidents. Residents from the Joint Service (Army/Air Force) Emergency Medicine Residency Program in San Antonio, Texas, complete the elective as a requirement for their residency training. ***New agreements were initiated during 2004/5 between USU and Rush Medical College, Northwestern University Medical School, and the Darnall Army Community Hospital***. Future plans include the establishment of agreements with the Thomas Jefferson University Hospital and the University of Pittsburgh, during 2005. In addition to the military residents, CCRC receives requests for training from numerous civilian programs, including George Washington University, Case Western Reserve University, and the Genesys Regional Medical Health Systems, Lehigh Valley and SUNY Upstate.

CCRC Military Medical Field Studies Rotation. The Military Medical Field Studies Rotation at the CCRC accommodates up to twenty first-year medical students with prior service for the required military experience between the first and second years of medical school; if required by the Services, this number could be increased. Up to six, fourth-year medical students complete an elective rotation in operational medicine research at the CCRC each year; again, the number of students could be increased if required by

the Services. The operational experiences of the DHS Special Operations Division, Protective Medicine Branch are integrated throughout the medical school curriculum as tangible demonstrations of the medical science being taught. ***For example, a large part of the USU SOM curriculum on blast injury uses the first-hand experiences of the CCRC faculty acquired during their response to the embassy bombings in East Africa***.

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**USU School of Medicine Department of Military and Emergency Medicine and the Center for Disaster and Humanitarian Assistance Medicine.**

Establishment. The Center for Disaster and Humanitarian Assistance Medicine (CDHAM) was established in September of 1998, under the USU SOM Department of Military and Emergency Medicine (MEM) to advance the understanding and global delivery of disaster medical care and humanitarian assistance. The Center was established to ensure specialized expertise, consultation, training, education, and research for medical support activities that impact homeland defense, terrorism and disaster response, and humanitarian assistance. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CDHAM based on their professional interests and as their teaching and clinical responsibilities permit. **Kevin S. Yeskey, M.D., Associate Professor, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

Mission. The mission of CDHAM is to advance the understanding and delivery of disaster medical care and humanitarian assistance on a worldwide basis. Uniquely positioned as an academic center within the USU, the CDHAM has served as a focal point in the Military Health System to: 1) develop relationships between various governmental, non-governmental (NGOs), and private volunteer organizations (PVOs); 2) assist in the critical management of relief efforts in the medical response to weapons of mass destruction, terrorism, natural disasters, and humanitarian assistance contingencies through new developments in the areas of disaster and humanitarian assistance medicine (i.e., training in ultrasound imaging for disaster response and the development and use of PDA/handheld computer software platforms for disaster needs and assessment); and, 3) augment the training of military medical officers through specialized expertise, consultation, training in the field of Telemedicine, and medical informatics in relation to the austere environment, education, and research capabilities.

Center Activities. The CDHAM uses training, technology, and best management practices to improve military medical capabilities and readiness during disaster and humanitarian contingencies, especially through collaboration with the inter-agency process, the international medical community, and the host nation medical infrastructure and beneficiary populations. ***The CDHAM works closely with the Unified Combatant Commanders to meet its primary mission***. Such efforts generally involve direct liaison with other DoD humanitarian assistance centers to include the Center of Excellence (COE) for Disaster Management and Humanitarian Assistance under the United States Pacific Command (USPACOM) located in Honolulu, Hawaii; and, the Global Center for Disaster Management and Humanitarian Assistance (GCDMHA), University of South Florida, affiliated with the United States Southern Command (USSOUTHCOM), Miami, Florida.

In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other United States government agencies such as the United States Agency for International Development (USAID) and the Office of Foreign Disaster Assistance (OFDA/USAID), as well as international organizations such as the Pan American Health Organization (PAHO)/World Health Organization (WHO), and umbrella Non-Governmental Organizations (NGOs) such as INTERACTION. CDHAM continues to be actively engaged in various studies supported by the Department of Defense (DoD), the Unified Combatant Commanders, and other Federal agencies. A summary of CDHAM's activities during 2004 follows.

Administrative/Managerial Oversight. The CDHAM's mission and functions are principally executed using funds received through USU as a Congressional appropriation to support the advancement of understanding the global delivery of disaster medical care and humanitarian assistance across the DoD. Beginning in 2004, the USU established a new requirement for the CDHAM to develop an application for funds granted using the United States Department of Health and Human Services Public Health Service Grant Application (PHS 398). In meeting this requirement, the CDHAM implemented a four-tier hierarchy to define its program activities: 1) Core (funds to support the administration, strategic planning, marketing, project development, and pursuit of new extramural projects); 2) Studies and Evaluation; 3) Educational Development; and, 4) Operations and Training. To ensure the proper execution of Congressional funding, the CDHAM is required to participate in a Scientific Advisory Board (SAB) that is hosted by the USU Office of Research. The SAB evaluates the nature and application of CDHAM's academic, scientific, and operational pursuits. The program areas, except for the core, are more fully discussed below.

***- STUDIES AND EVALUATION.***

Studies and Evaluation (S&E) funding is utilized to advance defined, specific methodologies in operational humanitarian assistance/disaster response (HA/DR) settings and to permit the continued organization and access of information obtained from HA/DR settings.

***After Action Reporting System.*** The After Action Reporting (AAR) project stems from a study published for the Assistant Secretary of Defense, Special Operations for Low-Intensity Conflict (ASD/SOLIC) to evaluate measures of effectiveness for humanitarian assistance and disaster relief (HA/DR) activities. CDHAM identified three reasons for developing a more effective AAR system:

- To better evaluate the stated mission objectives and measures of effectiveness and the performance of leaders and operators during HA/DR missions;

- To hypothesize shortfalls in planning, prevent operational failures, and offer recommendations for improvements on future missions; and,

- To provide specific information on points-of-contact, timeliness, costs, and deliverables.

While most organizations require some type of after action reporting, procedures to collect the information are not standardized. Also, retrieving reports is routinely complicated by problems in identifying the office primarily responsible for, or the location of, archived reports. To address these, and other shortfalls, the CDHAM held discussions with software developers and had follow-on conferences to evaluate the means to better define the deliverable. The CDHAM identified a software platform and established the necessary fields/elements for the system. The next phase of the project will be to develop the AAR software and pilot a validation study of the process(es).

To demonstrate program effectiveness, the CDHAM proposes to fund the start-up costs and invite Service participation in the utilization of the AAR system. As reports are posted, an analysis will be conducted by the CDHAM to compare the system to existing report methodologies. It is anticipated that there are numerous potential end-users in the civilian and military HA/DR communities. In the ASD/SOLIC

study, CDHAM reported that military and civilian providers of humanitarian assistance, both medical and non-medical, face similar challenges in measuring the effectiveness of their activities (*i.e.,* ***determining critical information that needs to be collected and transforming that information, in a timely manner, into management decisions that directly improve effectiveness***).

The Unified Combatant Commands (UCCs) need to have information, background, and training to make difficult decisions among many competing priorities for effective humanitarian assistance programs. The need to measure and improve the effectiveness of humanitarian assistance programs is widely recognized by the UCCs, therefore multiple potential partners exist, both within DoD and in the larger HA/DR communities (i.e., NGOs/PVOs). The technical requirements for the system include standard, commercial, off-the-shelf software (Microsoft Access and Internet capabilities), hardware (laptops), and store and forward methodologies (the Internet and satellite transmission capabilities). For future applications, the CDHAM intends to determine the applicability of the system for implementation into hand-held platforms being developed across other projects.

***Humanitarian Training Program for the San Antonio Military Pediatric Center, Joint Pediatric Residency Program, Honduras, and Health and Nutrition Surveillance for Force Health Protection and Humanitarian or Disaster Assistance.*** This is a study being conducted in collaboration with the Honduran Ministry of Health and Joint Task Force Bravo (JTFB) in Honduras. The protocol uses procedures to: evaluate Honduran fortified foodstuffs; complete nutrition assessments of children ages 6 to 59 months; assess anemia status; pilot test the use of dried blood spots for analysis of retinol, retinol binding protein, transferrin receptor, and C Reactive Protein (CRP); and, utilize hand-held computers to collect survey and clinical evaluation data and transmit that data via satellite. With funding sponsorship by CDHAM, evaluations are conducted three times per year through coordination with: the Honduran medical liaison; the Joint Task Force Bravo; the USSOUTHCOM; the Honduran Ministry of Health; and, the Joint Pediatric Residency Training Program at Wilford Hall, San Antonio, Texas. The JTFB Medical Element provides logistical support to include transportation, communication in the field, and security. A registered dietitian accompanies each mission for consultation and training on the research methodology, surveying techniques, macro and micronutrient malnutrition assessments, and the use of anthropometric and blood collection equipment. ***The provided research, medical and nutrition assessment, deployment, and readiness training supports pediatric residents, medical students, MPH students, junior dietitians, and medics***.

Rural locations/villages throughout Honduras, prioritized in collaboration with the Honduran Ministry of Health and Honduran medical liaisons at the JTFB, are selected for each training mission. Overall, the purpose of this study is to:

- Determine the fortification level of a variety of fortified foodstuffs within Honduran food;

- Utilize hand-held computers to collect survey and clinical evaluation data and transmit that data via satellite;

- Complete nutrition assessments of children ages 6 to 59 months and determine the prevalence of anemia; and,

- Pilot test the use of dried blood spots (DBS) for analysis of retinol, retinol binding protein, transferrin receptor, and C Reactive Protein (CRP).

The project focuses on children's health and is designed to assist in eliminating health disparities among special ethnic populations. ***The continued collection of health and nutrition assessment-based research data will help to target the most at risk population groups and will validate requirements for public health and nutrition interventions***.

***Automated Disaster and Emergency Planning Tool.*** There is a need for a standardized public health and medical planning process to address emergencies that may involve a wide range of hazards: natural; technological; and, terrorism. Public health and hospital officials face many challenges for efficient and effective planning, to include limitations on time and the background knowledge necessary for evidence-based decision-making. In addition, public health and medical emergency plans must address a wide range of possible contingencies, yet remain *user-friendly* and widely accessible.

The Centers for Disease Control and Prevention (CDC) Automated Disaster and Emergency Planning Tool ***(ADEPT) is an innovative software-based process for writing, exercising, and evaluating public health and medical emergency operations and disaster plans***. This process integrates all-hazard planning with the internationally accepted SPHERE standards for disaster response as well as nationally accepted models like the National Incident Management System (NIMS), Continuing Quality Improvement (CQI), and the Hospital Emergency Incident Command System (HEICS). ***The tool guides the user in assigning tasks and performance indicators for each disaster function***. ADEPT can be used on a laptop or PC computer and is being developed through support by the CDHAM for hand-held PDA applications.

The ADEPT applies evidence-based objectives to the process of disaster planning so that subsequent responses can be measured for effectiveness and validated according to the emergency operations plan itself. The CDHAM has funded Phase I of the ADEPT conversion for use as a document management interface to support controlled access and distribution of commonly-shared disaster and emergency response documents. Phase I also includes the following:

- The On-line Document Management System will be integrated with the ADEPT Portal Solution Implementation for the secure delivery of reference materials and other resources to both public and private entities;

- Administrative Interface is integrated directly with the Website Portal. When end-user administrators log in, they will see only the sections that they have access to administer in an editable format; the same holds true for the end or group-user;

- End-user Interface will be provided to include the *Interview* or *Wizard* process for stepping through the establishment of custom critical disaster and emergency management procedures (Custom Section Content administration); and,

- Integration of Custom Section Content with Standard Reference Documents stored in document management interface will also be provided.

Initially designed for national health agencies and hospital applications, ADEPT will have broader applications in both the domestic and foreign settings, to include complex emergencies and comprehensive national response planning.

***- EDUCATIONAL DEVELOPMENT.***

Educational Development (ED) funds support the continued development of educational materials for health and medical personnel responding to HA/DR incidents; they are ***continuously updated to reflect current knowledge, formatted to best accommodate web-based delivery systems, and modified to address new scenarios such as peacekeeping operations***.

***Military Medical Humanitarian Assistance Courses.*** Of ten *Military Medical Humanitarian Assistance Courses (MMHAC)* initially developed by the CDHAM, six are in final preparation for conversion into web-based programs. The content of the courses is being updated from lesson plans originally developed during 2001-2002. While the definitions and the military's view of complex emergencies have not changed much concerning basic dialog, the execution and response by the DoD has continued to evolve. The introductory lectures of many of the courses of instruction are being reevaluated in accordance with current language and policies.

From available materials, six courses are considered ready for web-based conversion; these were ranked using the following prerequisites:

- Immediate availability for HTML conversion for web presentation;

- Availability of materials, including electronic copies of reference materials and examinations;

- Current application to disaster management; and,

- Organization and structure of the course material.

Beta test versions of courses ready for piloting via CDHAM's homepage on the World-Wide-Web are being finalized and just-in-time instructional curricula will soon be available for utilization by DoD commands and other first responder activities.

***Operational Course of Instruction in Telemedicine.*** The CDHAM operates a demonstration course intended for personnel to gain a broader overview on the use of telemedicine in austere environments that would be useful to users of satellite communications in deployed settings. The course has been in existence since 1995; it consists of six hours of lectures, demonstrations, and small *hands-on* practical sessions; it provides closer insight into the clinical and technical skills required for the successful practice of telemedicine. The CDHAM faculty is comprised of military and civilian medical and technical personnel who have extensive experience in teaching and practicing telemedicine.

Disciplines within the medical sciences currently using telemedicine technology such as Radiology, Pathology, Psychiatry, Dermatology, and Cardiology are briefly discussed. Following the medical portion, other uses for deployable telemedicine systems are outlined, to include applications of the PCOST (Portable, Commercial, Open-Standards Telemedicine) System for use in disaster response and management, and integration of RLANS (Remote Local Area Networks) for data collection and management. The sessions

lead into an overview of equipment, followed by a basic *Spectrum of Telemedicine* session, that encompasses all of the various communications modalities used and how they relate to equipment on display.

The usage and integration of medical devices (Scopes-Sonosite) lesson follows, along with a demonstration of dental, dermatological, and otoscoscopes. At the conclusion of the scope sets demonstration, an introduction and use of the Sonosite portable ultrasound, in conjunction with the Gaumard, is presented. The demonstrations are intended to encourage audience interaction with the instructors and equipment in various formats (i.e., placing satellite calls, conducting video teleconferencing communication, and experimentation with the scope sets).

***Kerkesner and Bushmaster.*** The CDHAM staff continues to support the education of USU medical students during the first-year (*Kerkesner*) and fourth-year (*Bushmaster*) operational training courses. Live demonstrations of telemedicine equipment and medical informatics in relation to the austere environment are presented under actual field operating conditions. CDHAM will continue to support the USU field exercises as the University transitions into one consolidated field training exercise.

***NGO Guide and Briefings to USU Fourth-Year Medical Students.*** The CDHAM regularly participates in the USU fourth-year medical student training curriculum by providing a lecture on NGOs and their relationship to the United States military, based upon its publication, *Guide to NGOs: A primer about private, voluntary, non-governmental organizations that operate in humanitarian emergencies globally*. The CDHAM publication is an instructional reference that deals with NGOs, often referred to as private volunteer organizations (PVOs), non-profits, charities, or aid organizations. Actively involved in humanitarian emergencies globally, the role of NGOs and their interaction with DoD, which has become increasingly involved in HA/DR operations, is described and discussed in CDHAM's 247-page reference work. Designed to orient a wide range of readers with NGOs, their operations, strengths and limitations, budgets, practices, and other characteristics that make them unique across the humanitarian assistance community, ***the publication is a timely reference since it also includes two annexes dealing with NGOs in Afghanistan and Iraq***. The CDHAM distributed 100 copies to the United States Army Peacekeeping Institute, during the 2004 Academic Year. Additionally, 30 copies were provided to the military services general officer orientation courses; and, over 100 copies were made available to various military service academies, training and doctrine centers, Unified Combatant Commands, and service-specific command libraries. Finally, 100 copies were provided to the Joint Medical Planners Course (JMPC) where it is used as an integral part of the training curriculum.

***- OPERATIONS AND TRAINING.***

Operations and training funds provide support to on-going HA/DR projects within the Unified Combatant Commands and provide training to USU students and DoD medical personnel in residency programs.

***Support to Unified Combatant Commanders.*** The CDHAM maintains close working relationships with four of the five unified combatant commands - ***USSOUTHCOM***, ***USNORTHCOM***, ***USEUCOM***, and ***USCENTCOM*** - that have responsibilities for parts of the globe proximal to USU. The function of operations and training support varies from providing simple telephone consultation in response to questions

about HA/DR missions, to support with mount-out sets that incorporate telemedicine capabilities, to full-scale deployment of personnel for training and/or the implementation of management efforts for a medical response in support of a disaster or humanitarian relief operation. Some examples follow:

- Assisting a USSOUTHCOM team in conducting a National Disaster Preparedness assessment in Paramaribo Suriname;

- Assisting in the development of the SOUTHCOM-GCDMHA/USF sponsored INTERHANDS Program; and,

- Providing consultative services to the USSOUTHCOM Command Surgeon and the J4 Disaster Preparedness Program staff.

***CDHAM and the United States - Mexico Border Health Association.*** The CDHAM has been affiliated with the United States - Mexico Border Health Association (USMBHA) for more than four years. In planning for the association's upcoming 63rd Annual Meeting, CDHAM attended a planning conference during a local "Los Dos Laredos" meeting. CDHAM will serve as a co-host, along with the DoD Global Emerging Infections and Surveillance System (DoD GEIS), to present a pre-conference workshop entitled, ***Influenza: Understanding a Global Threat***, in Laredo, Texas, during 2005.

***CDHAM's Homepage and the On-Line Disaster and Humanitarian Assistance Portal.*** The CDHAM homepage on the World-Wide-Web, ***www.cdham.org***, provides information about the CDHAM mission and functions and enables users to access CDHAM resource materials and links to other HA/DR information pages. One feature on the CDHAM website is the capability to support web-hosting of real-time discussions of timely and relevant topics via the ***Disaster Management Zone (DMZ)***, as well as serving as a vital link to personnel or organizations involved in HA/DR activities anywhere in the world. Another vital link on the CDHAM homepage is the ***On-Line Disaster and Humanitarian Assistance Portal (ODHAP)***, a forum to provide rapid access - *two mouse clicks* - to a current listing of over 365 reference sites in 45 different categories dealing with relevant disaster response and humanitarian assistance topics.

To enhance the Center's capacity to execute its mission and functions, the CDHAM incorporated many new technologies to improve staff interaction on external projects and within the Center. The principal piece of the upgrade was the implementation of Microsoft SharePoint technologies to create a common portal for staff members. This feature gives CDHAM efficient and effective utilization of a system for announcements, a calendar for meetings and appointments, and a Microsoft Windows Messenger that allows communication between staff in a real-time chat environment. The latest technology to be added was Microsoft's Project and Project Server that allow staff to organize project timeliness, tasks, and resources and provides an on-line workplace for project organization. These technologies have all combined to help the CDHAM become more innovative and responsive to its support base.

***XXXV International Congress on Military Medicine.*** The CDHAM was a paid exhibitor at the 35th International Congress on Military Medicine, hosted by USU in Washington, D.C., on September 12-17, 2004. The CDHAM's exhibitor synopsis read, ***By focusing on medical aspects of disaster and humanitarian assistance, CDHAM supports military medical readiness with training, technology, and best management practices and researches real-world opportunities for learning and improvement***.

The international meeting was attended by over 450 military representatives from 60 countries. CDHAM products and publications, including CD-ROM versions of the *Measures of Effectiveness* study, the *Rapid Assessment* study, the *Guide to NGOs*, and the *Medical Preparedness and Planning for Man-made Disasters* workshop were distributed freely to all attendees.

***Center for International Rehabilitation Symposium.*** The CDHAM sponsored five persons, CDHAM faculty and other subject matter experts, to participate in the ***Second Regional Conference, Meeting of Experts: Reaching People's Needs by Building Partnerships in Technology and Integrated Rehabilitation, held in Mexico City, Mexico, on October 13-15, 2004***. The objectives of the conference were to: determine the needs of rehabilitation and disability institutions in Latin America; develop relationships among public safety, health care, and educational communities; and, encourage a local, sustainable approach toward rehabilitation and disability. Break-out sessions led by rehabilitation experts and persons with disabilities explored topics related to: First Emergency Responders (FERs); the Center for International Rehabilitation (CIR) Engineering Research Center; Disability Rights and Research in the Americas; Early Childhood Screening; and, Telemedicine and Teleconsultation. The three-day conference convened experts from the public health, science, and data gathering fields, as well as technology and tools from various partners involved in rehabilitative services. Over 30 regional and international organizations, including the International Committee of the Red Cross and Handicap International, were represented.

***United States Air Force Reserve and National Guard Component Education and Training Work Group.*** The CDHAM continues to be actively involved with a working group originally hosted by USU to address the topics of training, education, and certification programs for health care providers and emergency responders in the United States Air Force Reserve and National Guard Components. The CDHAM is actively pursuing means to serve as a resource for developing and operating web-based training for the Guard and Reserves as part of its homepage on the World-Wide-Web.

***Support to Honduras.*** The CDHAM provided funding support for a rotation of two fourth-year USU medical students through the USU SOM Department of Military and Emergency Medicine to participate in the nutrition-based study in Honduras.

***Support to USU MPH Students***. The CDHAM sponsored efforts for one United States Air Force International Health Specialist (IHS) Master of Public Health (MPH) graduate student at USU to work on a project that examined after-action reporting for the DoD Office of Low Intensity Conflict. The IHS/MPH intern was given technical in-put and provided project review as well as academic guidance on his project, which was in partial fulfillment of his IHS/MPH Degree sponsored by the USU SOM Graduate Education Programs. In addition, the CDHAM faculty provided technical guidance concerning DoD's response to HA/DR deployments as well as participating as a member on a thesis review board for one United States Army student in the USU MPH Graduate Education Program.

***Joint Special Operations University.*** The CDHAM provided two lectures during the Fiscal Year 2004 Academic Year for the Joint Special Operations University (JSOU), specifically on the topics of the military medical response to complex emergencies, as well as an update on the medical concept of operations during *Operation Iraqi Freedom*. The CDHAM also sponsored one fourth-year USU medical student to attend the ***JSOU Medical Officers Orientation Course*** at Hurlbert Field, Florida.

***The Veterans Administration Employee Education Steering Committee for Public Law 107-287.*** The CDHAM provided support for numerous meetings to the Department of Veterans Affairs (VA) as part of an effort to develop training for employees in response to Public Law 107-287, which addresses the VA's responsiveness and facility preparedness against bioterrorism following the events of September 11, 2001. The CDHAM represented the USU at all Sub-Committee Chair and Working Group Conferences on topics dealing with biological agents, chemical agents, radiological weapons, mental health/stress management, and explosive agents/blast injuries.

***Department of Homeland Security and the Veterans Affairs Briefing.*** The CDHAM participated in USU hosted briefings to representatives from the Departments of Homeland Security and Veterans Affairs concerning programs for bioterrorism planning and responsiveness.

***Deployment/Contingency Operations Support.*** The CDHAM Associate Director for Strategic Information and Operations deployed to Iraq for four months during the Summer of 2004 **as the CFSOCC Command Surgeon** to support the Iraqi counter-terrorism force training and employment.

Extramural Sponsored Funding Support. The CDHAM funding is also derived from various extramural support activities that address specific concerns for humanitarian assistance and disaster response world-wide. In the case of extramural contracts, fund sponsors request the CDHAM to prepare a Statement of Work to provide specific deliverables for a specified funding amount over a specific period of time. Extramural projects currently being executed are described below.

***Defense Monitoring and Evaluation of the DoD HIV/AIDS Prevention Program in Africa.*** The CDHAM is being funded by the Navy Health Research Center (NHRC) in San Diego, California; NHRC is the executive agent for the DoD HIV/AIDS Prevention Program (DHAPP). The CDHAM is conducting an evaluation and analysis of the Program with a focus towards the validation of the current business plan and execution of program dollars since the establishment of the DHAPP in Fiscal Year 2000. The CDHAM reviewed the DHAPP Program through a series of on-site visits, documentation review, and programmatic comparisons against similar programs. The major areas reviewed and discussed were DHAPP history, policies and procedures, contract review and selection procedures, documentation, and literature and library resources. A series of reports were developed that focus on a common goal to promote program improvement and continuation.

To monitor the progress of the DHAPP, the CDHAM used a number of effective and proven monitoring and evaluation (M&E) methods to define program areas and appropriate indicators that would enable the DHAPP program managers to measure program performance. Specific goals summarized for DHAPP were the establishment of a baseline of program descriptions and program goals for DHAPP to facilitate further development of a DHAPP M&E Plan, and the adoption of existing, successful global M&E methods and program goals to monitor and evaluate the DHAPP program areas. To achieve this objective, the CDHAM assisted the DHAPP by: 1) developing an M&E purpose statement; 2) defining HIV/AIDS intervention areas within the DHAPP; 3) developing a program objective hierarchy; and, 4) defining program goals.

The CDHAM developed and implemented a 188-page M&E plan in CD format for the DHAPP that outlined 13 unique HIV/AIDS activities in three major themes (prevention, care, and treatment). The entire

plan was supported by 34 external support documents from the United Nations, the United States, Non-Government Organizations, and selected countries. Additionally, the project resulted in the publication of *The Military to Military Connection: Combating HIV/AIDS among African Militaries, Part I - A Risk to Regional Stability and Security and the Impact on the Uniformed Services* that appeared in the 2004 Fall Edition of the Journal of Special Operations Medicine.

***USSOUTHCOM Assessment of HIV/AIDS Prevention Program Activities for Select Caribbean-basin Countries.*** The CDHAM, in collaboration with the Global Center for Disaster Management and Humanitarian Action (GCDMHA), University of South Florida, was requested by USSOUTHCOM to perform a needs assessment of select Defense Forces/Military organizations related to its current HIV/AIDS Prevention Program activities. A secondary focus of discussion centered on treatment and care issues of the military members and beneficiaries.

The United States military is called upon, with increasing frequency, to participate in both domestic and international disaster response and other humanitarian assistance with an inevitable major focus on the provision of medical and health services in austere environments; and, it has developed numerous initiatives to support affected countries. In the global war against HIV/AIDS, military-to-military programs are an important element of the overall national program, which is often not addressed within this framework. It is this *niche* group that is the focus of the effort with an aim to improve HIV/AIDS Prevention Program activities such as education and training for the military. Additionally, CDHAM's review of processes utilized by DHAPP and the development of effective monitoring and evaluation (M&E) programs, will improve the response against the world-wide threat of AIDS with specific emphasis in the Caribbean, as well as to ensure better assessment techniques, prevention programs, and training of affected populations. These benefits will ultimately accrue to all military and civilian HIV/AIDS prevention efforts.

Specific activities by CDHAM in support of USSOUTHCOM included travel to seven countries identified by USSOUTHCOM to assess and provide recommendations on the programmatic elements of the host nation's military services HIV/AIDS Prevention Program. ***As part of CDHAM's role as USSOUTHCOM's lead agent in the execution of this initiative, the CDHAM attended the 3rd Annual Caribbean Region Chief of Missions Conference on HIV/AIDS held in the Dominican Republic at the invitation of USSOUTHCOM.***

***Global Emerging Infections Surveillance and Reporting System.*** CDHAM collaborates with the DoD Global Emerging Infections Surveillance and Reporting System (GEIS) Program to support information gathering concerning diseases and related threats, as well as humanitarian assistance/disaster response (HA/DR) or disaster preparedness (DP) events resulting from *natural* phenomena or technological (*man-made*) activities. The CDHAM and GEIS share data and reports from projects, trips or activities conducted on behalf of the Unified Combatant Commands.

The CDHAM services involve the part-time utilization of a staff Special Project Officer who focuses efforts on developing a network of support between CDHAM; GEIS; USSOUTHCOM; the Naval Medical Research Command Detachment (NMRCD) in Lima, Peru; the Pan American Health Organization/World Health Organization (PAHO/WHO); and, military and civilian organizations/agencies in Latin America and the Caribbean, as appropriate. This individual endeavors to: 1) enhance inter-agency collaboration and cooperation; 2) create opportunities to leverage various resources to jointly develop and support disease surveillance initiatives; 3) support the enhancement of early disease surveillance warning systems; 4) advance and support HA/DR/DP initiatives; 5) attend national and international meetings, conferences, and

workshops concerning disease surveillance, bioterrorism, and related activities sponsored by select military and civilian agencies; and, 6) support various projects on location when traveling in support of CDHAM activities. Specific activities in support of the GEIS include:

- Assisting USSOUTHCOM with the Pan American Health Organization Disease Surveillance Workshop for Central America;

- Attending the USSOUTHCOM-Pan American Health Organization (PAHO) sponsored Central America Disease Surveillance Workshop in Managua, Nicaragua;

- Coordinating and attending a meeting concerning collaborative efforts between the Command Surgeon, USSOUTHCOM, and the United States Navy Medical Research Center Detachment-Peru;

- Coordinated meetings between the Director, GEIS, and representatives from the Pan American Health Organization;

- Coordinating and developing plans, to include the agenda, for the pre-conference workshop entitled, *Influenza: Understanding a Global Threat*, for the 63rd Annual Meeting of the United States - Mexico Border Health Association (USMBHA) held in Laredo, Texas, in June of 2005; and,

- Working with the Military Liaison Officer to the World Health Organization to develop a pre-conference workshop on Influenza, originally intended to take place in conjunction with the Asian-Pacific Military Medicine Conference, in Hanoi, Vietnam; however, this pre-conference workshop has been postponed at a date to be determined.

***USEUCOM Humanitarian Mine Action - Mine Victims Assistance.*** The Republic of Chad is faced with the significant challenge of ridding the country of land mines and unexploded ordinance (UXO) and managing the public health and medical consequences resulting from human encounters with these weapons. The country has been engaged in a de-mining effort for years. A United States Government (USG) sponsored Humanitarian Mine Action (HMA) assistance program has been implemented in Chad. Through the United States European Command (USEUCOM), assistance has focused on training manual de-miners and UXO specialists. USEUCOM has now proposed a program of Mine Victims Assistance (MVA) in Chad. The country currently manages a national program for de-mining (HCND); however, the effectiveness and sustainability of the program is uncertain due to limited funding and training available to its personnel and the reliance on UNDP technical support. It is the intent of USEUCOM to provide assistance in the development of the HCND in the form of sustained training, material resources, and technical guidance.

Similar MVA projects have been successfully implemented in other parts of the world. In 1998, the United States Central Command (USCENTCOM) implemented a humanitarian de-mining training program, including a victim's assistance program (VAP) in Yemen. The VAP should be considered a central component of any de-mining project; however, many social and economic factors impede the implementation of such sustainable programs. The USCENTCOM program in Yemen included victim injury data collection, which was used to determine specific victim needs and to implement medical training programs for Yemeni providers. Infrastructure needs were also assessed, in cooperation with host nation government officials and international agencies.

The USU CDHAM was instrumental in establishing the VAP in Yemen. CDHAM developed the mine victim injury database that included the capacity to document injuries through digital images. Database development included standard operating procedures (SOPs) to assist with sustainability and to maintain patient confidentiality. The SOPs were translated into Arabic for use by local collection personnel. CDHAM staff deployed to Yemen to perform training of local personnel in the use of the database and other techniques. Additional deployments were conducted to supervise the initial use of the collection tool by local collectors. CDHAM staff also organized and coordinated the deployment of medical specialists who assisted in the training of medical personnel and evaluating victims. Recommendations were made for the purchase of equipment for the host nation medical referral centers. CDHAM staff conducted additional on-site visits to work with the United Nations, non-governmental organizations, and United States organizations to assess the on-going activities.

CDHAM will work with USEUCOM to develop a sustainable, effective HMA program within the HCND, Government of Chad. Using experience from previous mine victim assistance activities in Yemen and its contacts with medical subject experts, CDHAM will participate in planned site visits to assess training and equipment needs and to evaluate medical operations, to include host-nation treatment capabilities and clinical facilities. CDHAM will develop a mine victim database and recommend to USEUCOM the necessary prosthetics and other equipment needed in the rehabilitation of victims. Additionally, CDHAM will develop and implement the necessary training for the United States DoD medical personnel assisting with the USEUCOM program. Depending upon available funding and requests for service by USEUCOM, CDHAM will provide on-going oversight to the Government of Chad HCND program to ensure that the program remains sustainable by the host nation and that additional training of United States DoD medical elements occurs.

***Weapons of Mass Destruction Distance Learning Program.*** CDHAM and the USU SOM Department of Psychiatry received funding during Fiscal Year 2005 as a special congressional appropriation for the development of a weapons of mass destruction (WMD) distance learning program for civilian first responders and health care providers. This collaborative initiative for assisting emergency responders and health care providers in the preparedness for, and recognition of, a WMD incident will be a multi-disciplinary, interactive, quality assured, and tiered program leading to the awarding of continuing medical education (CME) credits, continuing nursing education (CE) units, and certificates of completion. The program is designed to reach a broad spectrum of uniformed and civilian students within the health care community, Federal health care responders, and others in the medical response community. The four primary disciplines include (but are not limited to) physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.). The program will be open to the public, free of charge, and available for anyone interested in enrolling. Collaborative relationships have been developed and subject matter experts identified with the United States Northern Command (USNORTHCOM), the Reserve Components, the Department of Veterans Affairs (VA), the Office of the Secretary of Defense (OSD), the United States Public Health Service (USPHS), the Center for Disease Control and Prevention (CDC), and the Association of Academic Health Centers.

The three-tiered program will consist of a family of activities as follows:

- **The First Tier, called the *Field Guide***, *will consist of a series of brief management guideline summaries that could be copied and used by providers to assist in the diagnosis and field and clinical management of casualties*. These guidelines will be compiled from the most current references, including those issued by the Centers for Disease Control and Prevention (CDC). This material will be reviewed by recognized subject matter experts and will be the most easily accessed. This tier will not require registration or user ID.

- **The Second Tier** of information *will consist of more extensive reference material and will provide in-depth coverage of various agents* of concern. Links to other reference material and other appropriate sites will be available in this section. This section, referred to as ***the Library***, will not require user registration. Submissions for this section will be reviewed by subject matter experts for currency and appropriateness.

- **The Third Tier** *will consist of* ***courses*** *that are related by agent category*. Submissions for this section will be reviewed by subject matter experts for currency and appropriateness. Categories include: Biological Agents; Chemical Agents; Radiation/Nuclear Agents; and, Explosive Agents. Within each category, there will be agent specific sections in the form of an overview followed by interactive case scenarios that are discipline specific. *Access to the* ***courses*** *will require user registration and an ID code*. Users will log on and be automatically directed to the discipline specific case scenario material, based on the registration material provided. As categories are completed, certificates of completion will also be automatically awarded/provided. The sections and courses will have pre- and post-tests. Six months after the completion of a course, a test will be electronically sent that will serve as an evaluation of retention and provide refresher material, as appropriate.

***The technology is being developed to capture/break out totals for*:** uniformed or civilian recipients of the training; the primary disciplines of the students (*physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.*); completed training by states and districts; organizations represented; CME/CE credits, units, and certificates issued by discipline; and, customer satisfaction information. ***This data will be used to determine the cost avoidance generated for DoD through this USU initiative***. The program is self-paced (i.e., the program will allow a paramedic to stop in the middle of his/her training session to respond to an emergency and, upon his/her return, will bring the student to the place where the training had to be stopped, while saving any input that may have already been entered by the student).

The first phase of the WMD program will focus on Radiation/Nuclear incidents. The following five learning objectives will be introduced through the program's case studies for a Radiological Dispersal Device (RDD) event: awareness; management; integration; command; and, communication. Case studies used in the program will include the following scenarios: a radiological dispersal device (RDD) incident including *dirty bombs* with radiation exposure and/or contaminated wounds; and, accidental exposure. Subject matter experts were carefully selected to provide expertise and content for the four primary disciplines. CDHAM provided all SMEs with 1) an instruction manual on how to develop course objectives, test questions, adequately sized lessons, and reference lists; 2) an initial draft of an RDD case study; and, 3) assignments to submit detailed discipline-specific dialogue, lessons with test questions, references, and other materials

(glossaries, synopsis, etc.). The Armed Forces Radiobiology Research Institute (AFRRI) course materials were used as a guide to frame the RDD case study. CDHAM expects to launch the program in early 2006.

(Appendix C, *Department of Military and Emergency Medicine* (MEM), provides additional information on the Center Director, ***Kevin Yeskey, M.D., Associate Professor, MEM.***)

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**USU School of Medicine Department of Surgery and the Center for Prostate Disease Research - A TriService Effort.**

> **Researchers led by Dr. Shiv Srivastava from the Center for Prostate Disease Research (CPDR), Uniformed Services University of the Health Sciences (USU), report the groundbreaking discovery of the ETS-Related Gene (ERG) as one of the frequent proto-oncogene overexpressions in prostate cancer cells. This discovery provides a very promising addition to a select group of genes, whose expression is frequently altered in prostate cancer cells and could provide novel molecular targets for diagnosis, prognosis or therapy of prostate cancer in the future...**
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> **This discovery was the result of a highly coordinated effort by urologists, pathologists, and cancer biologists from Walter Reed Army Medical Center (WRAMC), USU, the Armed Forces Institute of Pathology (AFIP), the Walter Reed Institute of Research (WRAIR), and the National Human Genome Research Institute (NHGRI).**
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> \- *Promising Lead in Prostate Cancer Diagnosis, New Discovery*, Medical News Today, June 11, 2005.

Background. The Center for Prostate Disease Research (CPDR) is a United States Department of Defense multi-site Program with major sites in Washington, D.C., and Bethesda and Rockville, Maryland. The CPDR is dynamic in that it integrates basic and clinical science programs and continues to make significant progress in developing promising detection techniques and treatments for prostate cancer and disease. The CPDR was established in 1991, by the United States Congress in an effort to combat the increasing rate of occurrence of prostate cancer.

The CPDR is a USU program; it is affiliated with the Walter Reed Army Medical Center (WRAMC) and the Armed Forces Institute of Pathology (AFIP), both located in Washington, D.C., as well as nine, TriService (Army, Navy and Air Force) Military Medical Centers located throughout the United States. The CPDR is administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Mission. The CPDR integrates a multi-disciplinary approach to prostate cancer and continues to make great strides in ***clinical and basic science research for improving the diagnosis, treatment and management of prostate cancer patients***. The Center's strategy is to focus investigators on potential breakthrough research leading to translational, cutting-edge technologies within the three major research programs (*Basic Science, Clinical, and Database*) while maintaining the core support requirements for all of its programs. **Colonel David G. McLeod, MC, USA, Urologic Oncologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery**, continues to serve as the Director of the Center for Prostate Disease Research; Colonel McLeod, following a national search, fills the endowed Clinical Chair position.

Center Activities During The Past Year.

***Clinical Research Center.*** The CPDR Clinical Research Center (CRC), located on Ward 56 at the Walter Reed Army Medical Center in Washington, D.C., provides state-of-the-art care to military beneficiary patients affected by prostate disease, with particular emphasis on enrolling military beneficiaries in clinical trials. The CPDR combines prostate screening, data collection, clinical diagnosis, education and counseling in a distinctly patient-oriented setting.

The CPDR Clinical Research Center at WRAMC has made great progress in improving clinical trial opportunities for military health care beneficiaries and expanding the core CPDR database, tissue bank, and serum bank protocols. Under the direction of Colonel David McLeod, the CPDR Director, are six clinical research nurses, a nurse practitioner and physician assistant, a patient educator, two research coordinators, two data managers and five administrative professionals, including a regulatory affairs specialist. To avoid over-burdening WRAMC's existing Anatomic Pathology Department, the Clinical Research Center also employs a histotechnician, located within the WRAMC Anatomic Pathology Department, who assists with the many on-going clinical trials and tissue studies at the CPDR.

***The CRC rendered medical and clinical trial services to 4,637 patients in 10,311 appointments and consultations, during 2004***; this represents an increase over the 9,567 appointments and consultations on 4,019 patients, which took place during 2003. After establishing a multi-disciplinary clinic for newly diagnosed patients and their families, in October of 2003, the clinic was refined, during 2004, to best meet the needs of the patients and to gather valuable data for research that will ultimately improve clinical care and contribute to improved diagnostics and therapeutics. ***Service participation includes specialists and residents from Urologic Oncology, Radiation Therapy, Psychology, Patient Education, as well as research staff to ensure that all treatment options available to the patient are carefully explained***. After the patients have met with all of the specialists, the group meets to discuss the individual cases presented and offers recommendations to the patients to assist them in their treatment decisions.

The weekly clinics have seen more than 450 patients (and their families), improving the continuity of care for the patients who utilize this one-stop shopping concept for care. In addition to providing a valuable service to DoD beneficiaries, the opportunity to collect more widely comprehensive data on their care and to expand the database in the areas of medical oncology and radiation therapy was realized.

The WRAMC Clinical Research Center currently has over twenty clinical trails, which offer a number of very innovative clinical protocols not offered anywhere else in the Military Health System. A comprehensive CPDR tissue bank and serum bank have been developed from patients treated for prostate cancer and other prostatic diseases at the WRAMC Center.

***Basic Science Research Program.*** The CPDR Basic Science Research Program (BSRP), located at sites in Bethesda and Rockville, Maryland, continues to focus on cutting edge molecular and cell biology research, with a goal to better understand the biology of the disease and to develop novel diagnostic and prognostic biomarkers and targeted therapeutic strategies for the treatment of prostate cancer. The CPDR-BSRP is led by **Shiv Srivastava, Ph.D., CPDR Co-Director and Scientific Director, Professor, USU SOM Department of Surgery,** who, following a national search, fills the Judd Moul Molecular Surgeon Basic Science Chair, an endowed chair position. A dedicated group of basic science cancer researchers including an Associate Director, one Assistant Director, two Senior Staff Scientists, four Staff Scientists, ten Post-Doctoral Fellows, two Laboratory Managers, five Research Assistants, and a Grants Coordinator

support the CPDR-BSRP endeavor. The multi-disciplinary focus of the CPDR ensures integration of the CPDR-BSRP researchers with Urologists, GU-Pathologists, Epidemiologists, Biostatisticians, Medical Technologists, and experts in the areas of Bio- and Medical Informatics and Regulatory Affairs.

In 2004, the CPDR-BSRP continued to produce peer-reviewed high quality papers in leading cancer research journals, including ***Oncogene***, ***Clinical Cancer Research***, the ***International Journal of Oncology***, ***Anti-Cancer Research***, ***Clinical Chemistry***, and the ***Journal of Urology***. The new research findings from the CPDR-BSRP were also presented at national and international scientific meetings (i.e., the *American Urology Association - 2004*; the *American Association for Cancer Research - 2004*; *AACR-Prostate Cancer - 2004*; *Key Stone Androgen Action - 2004*; *Key Stone RNA - 2005*; *SBUR-Fall 2004*; and, *SUO - 2004*. In 2004, the ***CPDR-BSRP was awarded three peer-reviewed grants (NIH-RO1, NIH-UO1 subcontract, and DoD-PCRP Resource Development)***. And, ***one United States patent was issued for the CPDR discovery of the novel prostate specific gene, PCGEM1, and its potential prostate cancer biomarker***. The CPDR-BSRP has also actively contributed to the training and education of Post-Doctoral Fellows, Urology Residents, Medical and Graduate Students, and Summer Students from High Schools and Colleges.

The CPDR is actively participating in the training and education of the Post-Doctoral Fellows and Urology Residents. Currently, ten Post-Doctoral Fellows and two Urology Residents are in training in multi-disciplinary prostate cancer research at the CPDR. The same number is projected for 2005. CPDR also continues to sponsor one Ph.D. Graduate Student, two MHS Residents, three International Fellows, and six Summer Students.

***CPDR-TriService Clinical Database.*** In 2004, significant improvements were made to CPDR's TriService clinical database. The revised Master Protocol was approved by USU on October 12, 2004. Subsequently, each participating military center has undergone the Institutional Review Board (IRB) process for approval. ***The 19,000+ patient database is the largest and most comprehensive longitudinal prostate cancer database in the United States***.

The overarching goals of the Master Protocol revision and database reorganization were to enhance compliance with The Health Insurance Portability and Accountability Act (HIPPA) regulations and to circumvent previous challenges to proper patient consent and data sharing across participating clinical sites. As a key modification to previous standard practice, data will no longer be sent as raw data files to investigators; instead, only final analyses will be sent in a collapsed, tabulated form. As recommended by the CPDR Scientific Advisory Committee, in its 2004 Site Visit Report, CPDR hired an epidemiologist with a strong statistical background to assist in its research activities. The epidemiologist's primary roles will include providing guidance on study design and methodology, enhancing data quality, enabling translational research such as molecular epidemiology, and monitoring adherence to the new Master Protocol. Overall, the major restructuring to the clinical database and Master Protocol have set the stage for dramatic improvement to the data quality, security, and usability of the clinical database. As a remaining goal, linkage of clinical data to tissue and serum bio-specimen data will be required to effectively carry out translational research.

***The Center Makes Significant Scholarly Contributions.*** During 2004, the CPDR made tremendous progress and contributions to prostate cancer research. CPDR researchers published 26 articles in leading prostate cancer and cancer journals. And, CPDR researchers made 27 presentations at national and international prostate cancer meetings.

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**The United States Military Cancer Institute.**

Background/Organization. The United States Military Cancer Institute (USMCI) is a component of USU; the Director of the Institute reports directly to the President of the University. In addition to the USU SOM, other components of the USMCI are the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, the Armed Forces Institute of Pathology, and the Armed Forces Radiobiology Research Institute. The Institute has, as its objective, the enhancement of multi-disciplinary cancer research under the USU aegis; the ultimate goals are to advance the science of cancer prevention, diagnosis, treatment, and research. **John F. Potter, M.D., former Director of the Lombardi Cancer Center at Georgetown University, and Professor of Surgery at USU,** serves as the Director of the USMCI. Doctor Potter is also a Department of Defense (DoD) Representative to the C-Change, an entity that brings together leaders in the National Cancer Community from academia, government, and industry; he also serves as the DoD Alternate Ex-Officio Member of the National Cancer Advisory Board of the National Cancer Institute.

Mission. The mission of the United States Military Cancer Institute is to promote collaborations among DoD basic and clinical scientists to augment cancer-related patient care and research activities. In a recent year, 355,000 DoD beneficiaries were undergoing treatment or follow-up for cancer. Basic scientists at USU are contributing significantly to translational cancer research with clinicians at the local military hospitals.

Benefits of the Cancer Institute. Cancer remains a very significant issue for the DoD in both human and economic terms. Annual costs for cancer care in the Military Health System (MHS) are estimated at $1 billion, of which TRICARE pays $550 million.

There are a number of benefits that flow from the establishment of the USMCI. The USMCI enhances the academic prestige of USU and positions the University among the premier universities having cancer centers. Medical and nursing students benefit from their involvement in multi-disciplinary patient care, which is the hallmark of state-of-the-art cancer treatment. The Institute enhances the collaborative relationships among cancer scientists in both the basic and clinical areas. The increased public awareness of the high quality of care provided to cancer patients in military treatment facilities should also increase the flow of patients to the military treatment centers. Post-graduate education must also have large numbers of patients for teaching purposes; this level is being threatened in some hospitals. The USMCI will increase patient accessions to the military treatment facilities. Moreover, these cancer patients present extremely challenging surgical and medical conditions. Caring for such patients maintains and enhances the skills of staff physicians, residents, medical students, and nurses. A cancer institute will stimulate the submission of grant applications to the National Institute of Health and other such prestigious entities. An increase in grant awards would be a clear indication of the high quality of research being conducted at the University. The Institute could also serve as a model for TriService collaboration.

**The United States Military Cancer Institute has been accepted as a member of the Association of American Cancer Institutes. This Association, to which all of the leading cancer centers in this country belong, has established rigid guidelines for admission. These include the performance of high quality basic, translational, and clinical research. The Association reviewed the extensive documentation, which it requires, describing the USMCI research**

**programs before voting for acceptance. This recognition is a tribute to the quality of USMCI research and patient care activities.**

- *Uniformed Services University Military Cancer Institute Recognized*, The Weekly Activities Report, Health Affairs, Office of the Secretary of Defense, September 3-7, 2002.

Achievements of the Institute. Since its inception, the Institute has accepted over 100 candidates as members. These basic and clinical scientists have formed TriService, multi-disciplinary research teams and programs. For example, the USMCI member programs now include the Center for Prostate Disease Research, the Clinical Breast Care Project, and the Cancer Vaccine Development Laboratory. A Scientific Advisory Board, composed of nationally distinguished cancer scientists, meets annually to review the progress of the Institute. At its most recent meeting, the Advisory Board declared that it was impressed with the progress of the Institute and expressed renewed support for the focus of the Institute on cancer prevention and control. This theme was adopted because it capitalizes on the talents of the basic scientists of the USU SOM to conduct translational research with clinicians in the local military hospitals. Also, the wellness concept is important for DoD's strategic goal on medical readiness. To achieve these goals, a nationally prominent epidemiologist has been recruited as the Associate Director for Epidemiology. Recently, a Memorandum of Understanding was signed with the National Cancer Institute (NCI) to conduct epidemiological studies on military beneficiaries; the NCI is funding this effort in the amount of $250,000. The ***BioSpecimen Network***, a tissue bank, has also been established to procure cancer specimens for molecular analyses by DoD researchers and their colleagues.

***Services Sign Memorandum to Combine Efforts in Cancer Research.*** The Commanders of four local military health care facilities signed a Memorandum of Understanding, in February of 2002, to create the first TriService Institutional Review Board for the United States Military Cancer Institute. In the past, the necessity for an investigator to obtain Institutional Review Board (IRB) approval from each institution at which the investigator wished to perform research (which often amounted to the completion of approval processes with four or five entities) served as a substantial roadblock to collaborative research. However, the signing of an agreement by the Commanders from the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Medical Center, and the President of USU enables researchers to obtain the required reviews of their research protocols through a more streamlined process. Instead of being required to submit a protocol to the IRB sponsored by each individual institution, a researcher can now make one submission to one *integrated* Institutional Review Board. This will facilitate the work of the investigators and expedite cutting-edge discoveries and technology for the DoD communities.

***Establishment of the USMCI Committee.*** A USMCI Committee has been established to support and advise the United States Military Cancer Institute. **The Honorable Frank Carlucci, former Secretary of Defense and National Security Advisor to the President of the United States,** serves as the Committee Chair. Other members include **The First Lady of the United States, Mrs. Laura Bush; Ms. Ellen Stoval, President and CEO of the National Coalition for Cancer Survivorship; Mrs. Marlene Malek, President of Friends of Cancer Research; Doctor Jeong Kim, Chairman of CIBERNET Corporation; General H. Norman Schwarzkopf, USA, Retired;** and, **Mr. Gerald S.J. Cassidy, President of Cassidy and Associates.**

***Congressional Recognition.*** The Congress of the United States has both recognized the United States Military Cancer Institute and mandated substantial funding for its operations during Fiscal Years 2002 through 2006.

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**The USU SOM Departments of Medical and Clinical Psychology *and* Family Medicine and the USU Center for Health Disparities Research and Education - *Project EXPORT*.**

Background. Despite overall improvements in health in the United States, there continues to be substantial health disparities within ethnic/racial minority (i.e., African-Americans, Hispanics, Native Americans, Asians) and other underserved populations. These disparities are believed to be the result of a complex interaction of many variables, such as biological factors, the environment, patients' health-related behaviors, and inadequate provider training. Greater efforts are needed to develop effective and efficient methods to reduce and ultimately eliminate these disparities. The Liaison Committee on Medical Education (LCME) has also stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology,** and **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine,** USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students, and other prospective health care professionals, faculty, and staff. Serving as a partial, but significant infrastructure for the USU SOM Center for Health Disparities Research and Education (USU/CHD), the USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. Specifically, CEHTO was established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships, inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided. Fundamentally, CEHTO is designed to teach current and future health care professionals how to increase their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal and communication skills, and cultural awareness to effect the most beneficial treatment for patients from diverse backgrounds.

During 2003, the University and the SOM Departments of Medical and Clinical Psychology and Family Medicine applied for, and successfully received, a substantial grant from the National Center for Minority Health and Health Disparities (NCMHD), National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as ***Project EXPORT***. **Evelyn L. Lewis, M.D., MA, USU SOM Department of Family Medicine,** served as the initial Principal Investigator on the NCMHD/NIH grant; upon her departure, **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology,** was designated as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. As part of *Project EXPORT*, CEHTO assists in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

Mission. The USU Center for Health Disparities Research and Education (CHD) aims to improve the quality of health care services provided to specific patient populations. The CHD is funded by the National Center for Minority Health and Health Disparities (NCMHD)/the National Institutes of Health (NIH) and administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine. In partnership with the University of Maryland-Eastern Shore and community-based organizations, the

Center's goal is to promote positive health-related change and ultimately eliminate health disparities among racial and ethnic minorities through research, education, training, community outreach, and information dissemination.

Center Components and Activities. This was an exciting and productive year for the USU Center for Health Disparities and Research (CHD). Although many of CHD's activities were related to *start-up* processes, and the CHD staff was required to manage *challenges*, especially in regard to personnel and space issues, the CHD Administrative, Research, Education, Training, Community Outreach/Information Dissemination and Shared Resources Cores worked collaboratively and collectively to move toward accomplishing stated goals and objectives, directly linked to its mission statement.

***Research Component.*** The Center's aim is to implement culturally relevant prevention and intervention activities that will improve health in underserved populations. The research core, currently composed of four projects, is intended both to refine scientifically valid intervention methods and to strengthen the participation of affected communities. Studies are designed to be culturally appropriate in terms of ethnic, social, economic, and cultural conditions that influence health status. The long-range goal of this program is to improve the knowledge and health behavior of underserved community members regarding prevention, detection, and treatment of cardiovascular-related risk factors and health conditions; and, to emphasize and develop cultural proficiency among health care providers. Of the four on-going studies, three are conducted in the community. Two of the community studies are treatment outcome studies; one is a community needs assessment. The fourth project focuses on evaluating cultural competency training delivered to third-year medical students.

This community-based prevention/intervention research seeks to expand the knowledge and understanding of the potential causes and remedies of cardiovascular risk factors. The CHD obesity-focused projects build on a programmatic theme of providing and studying obesity treatment in church settings. Obesity and overweight are well-accepted cardiovascular risk factors. African American and Hispanic women are more likely than their Caucasian and male counterparts to be overweight or obese, and they suffer from many chronic diseases associated with these conditions. At the same time, there have been very few controlled investigations of the efficacy or effectiveness of typical weight management techniques among ethnic minority populations. The CHD has extended its existing collaborations with predominately African American churches in the Washington, D.C. Metropolitan Area to include the Montgomery County, Maryland Department of Health and Human Services (DHHS) and the GOSPEL Program, an organization of churches centered on improving the health of its members. These community-research partnerships benefit both the health researchers and the community.

Lastly, the Institute of Medicine Report, *Unequal Treatment* (2003), documents the need for increasing cultural sensitivity and proficiency among the Nation's health care providers. Medical school curricula now require this type of training and new programs are being implemented. There is a need to document the efficacy of such training programs and to provide a means to revise curricula as the result of careful evaluation. The fourth CHD project is designed to meet this need.

***- Current Projects.***

***Project 1: Obesity Treatment and Prevention among African Americans: Utilizing Networks Outside Traditional Settings to Eliminate Health Disparities.*** Funded by the National Institutes of Health, under the direction of **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology,** the Obesity Treatment and Prevention among African-Americans (Project 1) is a research project that focuses on health behaviors in general, and upon diet and weight management in particular. A core element of the project is the delivery of evidence-based weight loss instruction (Behavior Choice Therapy, BCT) to African American women from the National Capital Area. The goal of this research is to promote long-term behavior change in the treatment of overweight and obesity and to prevent health problems and disease.

***Project 2: F.I.S.H. (Family Intervention Study of Health): Family-Oriented Obesity Treatment Program for African American Women.*** The F.I.S.H. study, funded by CHD (Project 2) is under the auspices of **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology**. This is a weight management study (an extension of the existing Behavior Choice Treatment Weight Management Program at USU) targeting overweight and obese African American women in a church-based setting. The objective of this study is to examine the impact of involving families in the treatment and the long-term weight maintenance of the women, and the prevention of overweight and obesity among the women's family members.

***Project 3: G.O.S.P.E.L. (Glorifying our Spiritual and Physical Existence for Life): Health Assessment/Survey for Church Groups.*** *G.O.S.P.E.L.* is a community-based health education program, which serves a collection of 11 African American churches in Montgomery County, Maryland. The *G.O.S.P.E.L.* Program is funded by the African American Health Program (AAHP) of the Montgomery County Department of Health and Human Services. Staff members from both the Research and Community Outreach/Information Dissemination cores of the USU CHD have worked in active collaboration with DHHS personnel and *G.O.S.P.E.L.* program outreach workers to design and implement a written questionnaire survey to assess the initial impact of the *G.O.S.P.E.L.* Program. The *G.O.S.P.E.L. CARES* needs assessment project was designed to identify congregants' health concerns and interests, as well as their familiarity with the first year of *G.O.S.P.E.L.* program initiatives. Preliminary results of the survey suggest that *G.O.S.P.E.L.* is a well-utilized, accessible program and an important opportunity for providing community-based health education to African Americans.

***Project 4: Cultural Proficiency Training.*** Occurring under the auspices of the Research Core of the Center, the major aims of this study are to evaluate the efficacy of cultural proficiency training delivered to third-year medical students. It is expected that a workshop, delivered by the USU CHD Education Core Staff, will increase medical students' cultural sensitivity and proficiency. During year one, data from 140 third-year medical students have been analyzed; and, a paper detailing the benefits of such training has been submitted. Data collection for third-year medical students is on-going and the Center expects to collect responses from approximately 140 students over the next year.

***Minority and Underserved Population Health and Health Disparity Education Component.*** The Education Component was very productive and successful in meeting its outlined objectives. The Family

Medicine Clerkship Cultural Sensitivity Training at USU, CHD's core educational offering and the forum for Research Project 4 data collection activities, continues on a regular basis. In addition, CHD staff have provided additional cultural sensitivity training for eight of the twelve Family Medicine Clerkship rotation sites at the various Army, Navy and Air Force activities where USU medical students carry out their actual clerkships.

A primary focus of this year's efforts has involved revising the Family Medicine Clerkship Cultural Sensitivity Program to incorporate other didactic and experiential modules that accomplish CHD's major objective - *to increase the cultural sensitivity/proficiency of medical students by increasing their knowledge about cultural differences and providing a safe environment in which to examine their own attitudes and beliefs about patients whose backgrounds are different than their own*. For example, as an extension of the Family Medicine Clerkship Cultural Sensitivity training that the medical students receive at the University, additional educational materials have been made available to the Family Medicine Clerkship sites around the country (i.e., selected readings, an instructional video/CD ROM on *Cultural Care for Diverse Populations*). Students are required to familiarize themselves with this information and they are evaluated in this regard at the end of their Family Medicine Clerkship rotations. A shorter version of this workshop is also provided for the clerkship site directors when they attend their annual meeting at USU. Similar workshops have been provided for the USU Medical & Clinical Psychology students and for Psychology Interns and Psychiatry Residents at the National Naval Medical Center. In addition, CHD is exporting this offering to the community; CHD recently presented a workshop at the Men's Health Summit, part of the African American Health Coalition, in Washington, D.C.

Establishing the *Better Health Players*, a group of six improvisational actors is another major education-related Year 1 accomplishment. *Better Health Players* is an upbeat, energetic theater group that helps people to share personal stories about visits to the doctor - stories that can help people to understand the special ways in which individuals relate to their health care providers. In the community setting, an individual tells his or her story about a visit with the doctor. The *Better Health Players* ***Conductor*** guides the individual through the storytelling process, and the individual chooses performers to play the significant characters in the story. Once told, the story is immediately recreated with artistic form and coherence by the theater ensemble. Finally, audience members are given information about ***Tips for Empowering Patients***, and a discussion follows on how to maximize the effectiveness of visits to the doctor. To date, the *Better Health Players* have performed at the Boys and Girls Club of Greater Washington.

***Community Outreach and Information Dissemination Component.*** The objective of this component of *Project EXPORT* is to actively involve community partners in research, training opportunities, and educational offerings to maximize the understanding and reduction of health disparities in minority and underserved populations. Through multiple activities, the Community Outreach and Information Dissemination Component extracts, synthesizes and compiles relevant material and information from the other primary components of *Project EXPORT*, and translates the resulting data into user-friendly materials for dissemination. The objectives include providing health promotion related materials and information about available health care services to minority and underserved populations most vulnerable to disparate health care treatment. In addition, the necessary infrastructure to carry out research is provided to the appropriate communities; and, opportunities to participate in research studies to elicit data about health care disparities are publicized.

As discussed above, the Community Outreach and Information Dissemination Component is a significant part in the cohesiveness of CHD and can be seen as a central element relative to the other components, specifically Research, Education, and Training; thus activities from this component are integral and in direct support of the other components.

Activities under the Community Outreach Component include meeting, in early March, with the Community Health Awareness & Monitoring Program (CHAMP), one of CHD's original community partners. During this initial meeting, an immediate need was determined that required CHD's assistance with the recruitment of volunteers for CHAMP's Annual Health Freedom Walk held on April 23, 2005. CHD also discussed CHAMP's requirement for assistance with data collection and analysis. Additionally, in April of 2005, CHD was invited to attend the Federation Task Force on Disparities in Healthcare meeting co-sponsored by the American Medical Association and the National Medical Association in Chicago, Illinois, where discussions among medical and public health professionals continued on the subject matter of disparities among racial and ethnic minorities in the United States. Also, during 2005, CHD will feature the *Better Health Players* during its sponsorship of an interactive workshop for USU faculty, students, and staff in recognition of Minority Health Month; the presentation is entitled, *Improving the Patient/Provider Encounter*.

The Latin American Youth Center (LAYC), another Center partner, and CHD crafted a Memorandum of Understanding regarding CHD's current role with the LAYC and the expectations of both organizations. As planned, CHD has assisted in funding two LAYC programs: the Teen Health Promoter Program (THP); and, the Health Professionals of Tomorrow (HPOT) Program. The high school students who participate in these programs will also visit USU to tour the campus, learn about medical school, and talk with Medical and Clinical Psychology Graduate Students about careers in the health care field. CHD is continuing to build its partnership with LAYC, especially through the expansion of CHD's role and participation in the Teen Health Promoter Program and collaboration on other related projects.

During the months of April and May, 2005, the Community Outreach and Information Dissemination Component arranged a series of health presentations by several local organizations for the Teen Health Promoters of LAYC. The topics included nutrition, diabetes, and drug use. The participants included the University of Maryland, Suburban Hospital, and USU staff. In addition, on April 21, 2005, the *Better Health Players* conducted a presentation for the LAYC on ***Improving the Provider/Patient Encounter***. The Community Outreach Component has aggressively continued to expand the Center's reputation and role in the community. As a result, this Component has actively initiated the development of relationships with several local public health, educational, medical, and community organizations and institutions in the Washington/Baltimore area. Through its interaction with the Metropolitan Washington Public Health Association (MWPHA) and its *Health Disparities* Committee, the Center presented a health seminar on March 10, 2005, on Health Disparities at the Takoma Park Community Library, in Washington, D.C., in a predominately African American neighborhood. Future presentations in coordination with the MWPHA are being planned.

On April 11, 2005, the Outreach Component offered a similar presentation on *Health Disparities* to the Latino Outreach Component of the Community Ministries of Rockville, Maryland. The main target audience for this presentation was the *Promotaras de Salud* (Health Promoters) who work in Montgomery County with underserved Latinos. This presentation emphasized teaching the promoters how to maximize the physician's encounter as a tool in helping to reduce health disparities; it was offered in Spanish by a Spanish-speaking Coordinator from CHD's Community Outreach and Information Dissemination Component. Other CHD partners for anticipated collaboration include: The Latino Health Initiative of Montgomery County; The Spanish Catholic Center (Washington, D.C. and Langley Park); Share Health Project, Maryland University (Outreach Component); UDC/State Education Agency, Adult Education (SEA); Mary's Center, La Clinica del Pueblo; Unity Upper Cardozo Health Center; the Washington, D.C. Public Library System; Casa of Maryland; and, Bread for the City, Project of Intermediate Advocates, George Washington University. In addition, the Outreach Component has worked with other community partnerships in the area; it participated with HIPS, a community partnership for health literacy and health

education at the *NBC4 Health and Fitness Expo* on January 31, 2005. And, the Outreach Component contacted DC Learns as a possible partner for disseminating health disparities fact sheets in the Washington, D.C. area.

With respect to Dr. Sbrocco's extensive experience within African-American church congregations in the Metropolitan Area, the Center established a partnership with the Montgomery County Department of Health and Human Services (DHHS), the Black Minister's Conference, the African-American Health Program and its existing *G.O.S.P.E.L.* Program, an organization of African-American churches in Montgomery County, Maryland, to address a shared interest in eliminating health disparities among minorities. The CHD developed the *G.O.S.P.E.L.* cares questionnaire, in collaboration with DHHS of Maryland and *G.O.S.P.E.L.*, to determine health education needs, health care access, and utilization pertaining to behavioral risk factors for cardiovascular disease and diabetes, diseases for which there are substantial health disparities affecting African-Americans. After the *G.O.S.P.E.L.* Cares questionnaire was designed, CHD staff wrote and later submitted an Institutional Review Board proposal, which was approved in May of 2005. CHD conducted research training for those administering the questionnaires to the various congregations. First round administration has ended, and all collected data is being analyzed and summarized for use by *G.O.S.P.E.L.* and its respective congregations.

***The Training Component.*** The objective of the Training Component is to provide exceptional training opportunities in biomedical research and the clinical sciences for students and junior faculty throughout the span of their academic development. The Training Component provides learning opportunities primarily at the undergraduate level. More specifically, CHD summer programs make research opportunities available to college students who are members of minority and underserved populations. These learning opportunities focus on research in the biomedical and behavioral sciences. Students are assigned faculty mentors to make their learning experiences as successful and productive as possible.

CHD has succeeded in meeting its primary Year 1 objective to provide a ten-week, fully-funded, summer research internship program at USU for minority students interested in the biomedical sciences or health care fields. Following a review of applications, eleven students accepted offers to the program for the Summer of 2004. The interns started on June 7, 2004, and completed the program on August 12, 2004; each student participant was paired, based on academic interests, with a scientist or physician mentor. CHD was able to secure on-campus housing for those students who were not from the local area. Besides convenience, this housing arrangement allowed for positive bonding and a transfer of information and learning from one student to another. Students also attended weekly laboratory meetings so that CHD could monitor their progress, manage any administrative or other concerns, as identified, and remain well informed. In addition, relevant didactic presentations (i.e., *How to Make a Scientific Presentation*, *Cultural Proficiency at Work*, *The M.D./Ph.D. Dilemma*) were offered at each laboratory meeting. CHD also partnered with the Pharmacology Summer Internship Program to combine social events and share didactic offerings with students from both programs. Finally, the combined CHD/Pharmacology Research Day and Award Ceremony, held at the conclusion of the summer intern programs, where students presented their summer research work, was a great success; one student from each internship program was presented with an award for *best presentation*. CHD expects that the 2005 Summer Research Internship Program will proceed as well.

***Shared Resource Core: EXPORT Data Network.*** The objective of the Shared Resource Core is to provide on-going data management and systems support to ensure the effective functioning of *Project EXPORT*. The goal of the Information Technology (IT) Shared Resource Core is to support and facilitate

consistent and high quality research by providing appropriate IT infrastructure to enable data collection, storage, management and analysis, and the generation of reports; this support also includes interaction and information exchange among the Center components and the timely dissemination of information to all participants. Information Technology support is also provided in the areas of training, program evaluation, budget tracking, and other Center requirements.

Regarding primary activities in this Component of CHD, a series of consultations were held with the Directors of Health and Health Disparity Education, Community Outreach and Information Dissemination, Research, and Training Components to discuss their vision for the project and to understand their requirements. During these sessions, the requirements for collecting, storing, securing, analyzing, reporting, publishing, sharing, and managing the various aspects of data were thoroughly reviewed. The result of these discussions was a ***Requirements Document*** that details the requirements for supporting the IT needs of the Health Disparities project. A ***Design Document*** was then developed based on the requirements identified; together, the ***Requirements*** and ***Design Documents*** serve as guidelines for fulfilling the IT needs of the Health Disparities project. The corner stone of the IT Shared Resource Core is the **EDN** (***E****XPORT* ***D****ata* ***N****etwork*), pronounced *Eden*. The technical architecture, framework and deployment model of EDN are detailed in the ***Design Document***. The scope of work involves the design, development, deployment, support, maintenance, and management of EDN.

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**The TriService Nursing Research Program - A Joint Program Under the Leadership of the Chief of the Army Nurse Corps, the Director of the Navy Nurse Corps, and the Assistant Surgeon General of the Air Force Nurse Corps.**

Background. Congress established the TriService Nursing Research Program (TSNRP) in 1992 and tasked the TSNRP to support research conducted by military nurses (S.R. 107-732). Since TSNRP's inception, the program has evolved through the earnest endeavors of military nurses. The TSNRP was authorized as part of the DoD Health Care Program and established at USU in 1996 (Chapter 104, Title 10, U.S. Code, as amended). The TSNRP is under the leadership of the Chief of the Army Nurse Corps, the Director of the Navy Nurse Corps, and the Assistant Surgeon General of the Air Force Nurse Corps. Through continuing investments of resources and support from the Congress, military nurse investigators have increasingly invested their time and expertise in this program. Military nursing research has begun to yield valuable results as uniformed nurse investigators have initiated efforts to expand the scientific foundation for military nursing. Success of the program is evidenced by the positive outcomes of research studies conducted to improve the health of service members and their beneficiaries.

Since 1992, the TSNRP has funded 266 research studies in basic and applied science and involved more than 600 military nurses as principal and associate investigators, as well as consultants and data collectors. Some of the topics investigated with TSNRP include:

- Deployment Readiness for Service Persons and Dependents;
- Health Practices to Enhance Readiness;
- Evacuation and Transportation of Wounded Warriors;
- Nursing Care in Unique Military Environments;
- Health Care Force Retention;
- Effects of Deployment on Service Members' Health;
- Animal Studies to Develop Treatment for Hemorrhagic Shock and Understand the Effects of Heat Exposure;
- Interventions to Support Recruits;
- Skills Development and Maintenance;
- Military Nursing Histories;
- Health Promotion and Disease Prevention;
- Men and Women's Health Issues;
- Managed Care Environments;
- Case Management;
- Nurse-Run Clinics;
- Telehealth; and,
- Econometrics.

Abstracts for all TSNRP funded studies are available on the TSNRP website at <*http://www.usuhs.mil/tsnrp*>.

Mission. During 2001, the TriService Nursing Research Program re-defined its mission: ***to provide resources for the conduct and use of research to foster excellence in military nursing care***. To achieve its mission, four goals were identified:

1) Increase the military nursing research capacity by providing opportunities for nurses to engage in military nursing research;

2) Expand the breadth and depth of the nursing research portfolio by encouraging and funding programs of research in TSNRP's focused areas of investigation: ***deployment health***; ***developing and sustaining competencies***; ***recruitment and retention of the workforce***; ***clinical resource management***; ***military clinical practice***; and, ***outcomes management***;

3) Develop partnerships for collaborative research among the Services and their components, institutions, disciplines and agencies; and,

4) Build an infrastructure to stimulate and support military nursing research and provide resources to support the exploration of salient military nursing research issues.

The TSNRP's first Director was appointed, in 1997, and charged with the responsibility to coordinate and implement all aspects of the program and to manage the *day-to-day* operations of the TSNRP. Also during 1997, the TSNRP established the Resource Center for Excellence in Military Nursing (the Resource Center) to provide resources for nurse clinicians, nurse researchers, and policy makers in support of military nursing research. Reestablished in 2001, the major goals of the Resource Center include:

- Provide military nurse researchers with a repository of information for use in designing, implementing, and disseminating nursing research;

- Improve the quality and quantity of proposals submitted by military nurse clinicians;

- Facilitate the implementation of research findings into clinical practice; and,

- Promote the timely dissemination of TSNRP-funded research findings.

With a redefined mission, identified goals and strategies, and the Resource Center firmly in place, the TSNRP offers military nurse researchers a full spectrum of services that will improve the ability of military nurses to provide appropriate, high quality health care for the Armed Forces.

Highlights of TSNRP Activities During 2004.

***Program Executive Director.*** The Executive Director of the TSNRP must be an active duty military nurse; the position is rotated among the three Services. The leadership position was passed to the Navy in the Summer of 2003, when **Commander Patricia W. Kelley** became the TSNRP's third Executive

Director. As Executive Director, CDR Kelley coordinates and implements all aspects of the program and manages the *day-to-day* operations of the TSNRP.

Commander Kelley was inducted as a Fellow of the American Academy of Nurse Practitioners at the 19th Annual Conference of the American Academy of Nurse Practitioners, in New Orleans, Louisiana, on June 14, 2004. While attending the conference, Commander Kelley, the Keynote Speaker, presented *Mentoring for Research Success*. Also, she presented her research findings from her TSNRP-funded research project entitled, *Diabetes Case Management: Effects on Glycemic Control*. Commander Kelley was invited to the Sigma Theta Tau Nursing Honor Society's 15th International Nursing Research Congress & Pre-Conference in Dublin, Ireland, where she presented her research project entitled, *Evidence Based Practice: Military Nursing Initiatives*. And, Commander Kelley served on the Scientific Review Committee for the 16th Annual Karen A. Rieder Nursing Research Poster Session held at the 110th Meeting of the Association of Military Surgeons of the United States, in Denver, Colorado.

***- New Program Manager.*** **Mrs. Elizabeth W. Tordella, MS, RN,** brings a comprehensive array of skills and experience to the TSNRP. She is an advanced practice registered nurse and is completing her education for a Ph.D. in Health Policy; she has experience in managing research projects and continuing education programs for health professionals.

***General Program Activities.***

***Outreach***. One of the strategies employed to stimulate and support military nursing research is to increase the visibility of opportunities available to military nurses through the TSNRP. During 2004, the TSNRP exhibited and participated at many nursing forums throughout the Nation. These activities included: the Phyllis J. Verhonick Nursing Research Course, in San Antonio, Texas; the Uniformed Nurse Practitioners Association Meeting and the American Academy of Nurse Practitioners 19th Annual Conference in New Orleans, Louisiana; the Sigma Theta Tau Nursing Honor Society's 15th International Nursing Research Congress & Pre-Conference in Dublin, Ireland; the National Congress on the State of the Science in Nursing Research in Washington, D.C.; and, the 110th Meeting of the Association of Military Surgeons of the United States, in Denver, Colorado.

***Website.*** The TSNRP introduced a new and improved web site, <***www.usuhs.mil/tsnrp***>, in 2004. The site provides investigators with current information on opportunities for: dissemination; funding sources; the TSNRP Call for Proposals with applications and guidelines for TSNRP funding; abstracts for currently funded studies; findings from previously funded studies and references and links to related web sites; Resource Center activities; and, password protected areas for the Advisory Council and Scientific Review Panel members. Approximately 10,000 *hits* are logged each year.

***Testimony Before the Senate Appropriations Committee, Subcommittee on Defense.*** During 2004, the **Director of the Navy Nurse Corps, Rear Admiral Nancy J. Lescavage** and the **Assistant Air Force Surgeon General, Nursing Services, and Assistant Air Force Surgeon General, Medical Force Development, Major General Barbara Brannon,** submitted written testimony for the Senate Appropriations Committee, Subcommittee on Defense, noting the value of the TSNRP to military nursing practice.

***Rear Admiral Lescavage testified:***

**We continue to focus on advancing the practice of military specific nursing and its response to requirements of military readiness and deployment. The TriService Nursing Research Program has conducted Grant Management Workshops, which provided invaluable mentorship and training, resulting in an increased number of higher quality grant submissions. Research results are shared collaboratively across the Services and are further disseminated to other facilities. Many of our research grant findings have been presented worldwide in numerous nursing conferences and in at least ten professional publications.**

***Major General Brannon testified:***

**Air Force nurse researchers stay on the cutting-edge of advancing the science and practice of nursing. I am proud to say that twenty-one Air Force nurses are actively engaged in TriService Nursing Research Program (TSNRP) funded initiatives.**

**Air Force researchers are leaders in the Department of Defense and the Nation in operational nursing research. In Fiscal Year 2003, nursing research at Wilford Hall Medical Center continued to focus on the care of the war fighter in military unique and austere environments. A study on the thermal stresses on board military aircraft led to the evaluation of products designed to maintain body temperature in critically injured patients during aeromedical evacuation. This will identify devices that are effective in maintaining temperature control to improve support and survivability of casualties.**

**The TSNRP-funded *Air Force Combat Casualty Aeromedical Nursing* research study describes the experience of AE crew members in providing combat casualty care to gather information that can be used to improve AE nursing practice. The study also aims to pilot a research instrument to measure characteristics of casualties in different locations and the nursing care required. This study will influence AE combat casualty care and future training.**

**Another study, *Recruitment Decision Making for Military Nursing Careers*, is being conducted collaboratively by military nurse researchers at Keesler AFB and nursing researchers at the University of South Alabama. The goal of this study is to describe factors that influence nursing students in considering military nursing careers. This study will help identify the characteristics of individuals interested in military service and guide recruiting services in deploying recruiting initiatives.**

Resource Center for Excellence in Military Nursing.

***TSNRP's Publication Project.*** Following participation in the 13th Biennial Phyllis J. Verhonick Nursing Research Course, 36 military nurses participated in a one-day ***Publication Workshop***. This is the first phase of TSNRP's ***Publication Project***. Participants gained helpful tips on writing research findings, revising, and publishing from a widely-published nursing research scientist.

***2004 Grant Writing Camp.*** *Grant Camp I* was held from May 24-28 at USU; it provided 18 (6 Army; 5 Navy; 6 Air Force; and, 1 National Guard) military nurse researchers the opportunity to learn about the grant development process through lectures, discussion, and hands-on small group work sessions. Highly experienced faculty from both academia and the military led the workshop and provided one-on-one mentoring for each participant's proposals.

*Grant Camp II - Mock Scientific Review* was held on August 19-20 at the Naval Air Station, Coronado, California. Participants from Grant Camp I continued to work on their proposals and gained familiarity with the scientific review process used by TSNRP for screening research proposals for scientific merit. The Mock Scientific Review panel, composed of both faculty and Camp participants, reviewed each of the participant's proposals; nine students submitted research proposals in the Fall of 2004.

***Regional Research Center Evidence Based Practice Initiatives.*** Regional nursing research centers were created, during 2001, through the TSNRP Resource Center. These regional nursing research centers, termed *Pods*, are located across the United States and Hawaii and are led by doctorally-prepared military nurse scientists. The objectives of the Research Pods are to: facilitate military nursing research across the Services; provide mentorship to master degree prepared nurse researchers; support programs of nursing research within and across the Services and Military Medical Centers; share research resources; foster collegial support for military nurses interested in conducting research; and, facilitate utilization of research findings in practice.

***The Evidence Based Practice (EBP) Improvement Project in the Northeast Pod.*** The National Naval Medical Center (NNMC) and the Walter Reed Army Medical Center (WRAMC) collaboratively engaged in a multi-phase performance improvement project to facilitate the implementation of three evidence-based nursing practice guidelines at each site. Nurses at NNMC are developing guidelines for pain management, central line care, and neonatal tactile stimulation and thermoregulation. Nurses at WRAMC are developing clinical practice guidelines for pressure ulcer care, enteral feeding, and Deep Vein Thrombosis/Pulmonary Embolism prevention. Intensive EBP training by internationally recognized EBP experts preceded these efforts.

***The Military Nursing Outcomes Database (MiLNOD) Project***. The MiLNOD project evolved from TSNRP Resource Center seed money into four grants. MilNOD is collecting data to support evidence-based clinical and administrative decision-making and seeks to create a reliable and valid database consisting of standardized nursing staffing and patient safety data. The MilNOD project has influenced the development of the Veteran's Affairs Nursing Outcomes Database (VANOD). The ***Northwest Pod*** sponsored a two-day conference, Analytic Strategies for Nursing Databases, in November of 2004, in Palo Alto, California. It brought together military nurse researchers, consultants, and experts to discuss and provide methodological guidance to the project.

***The Southeast Pod Evidence Based Project (EBP) Initiative Project.*** Outcomes of the ***Southeast Pod***'s EBP Initiative Project included participation of more than 30 nurses at three military bases (Elgin Air Force Base, Keesler Air Force Base, and Pensacola Naval Air Station) in classes that provided information about EBP and provided motivation for the development of EBP guidelines.

***The Southwest Pod Project Conducts Workshop for Multi-Disciplinary Teams.*** An internationally recognized EBP expert conducted a workshop for multi-disciplinary teams at the Brooke Army Medical Center (BAMC) and the Wilford Hall Medical Center (WHMC). Nurses at these medical centers are involved in the ***Southwest Pod***'s project, *Evaluative Process of Applying Evidence to the Delivery of Health Care for Beneficiaries Receiving Ventilator Care*. The workshop highlighted outreach strategies for persuasive and continued engagement with the staff to disseminate proposed implementation plans through both BAMC and WHMC. This project recently started the process for implementing and measuring outcomes of a specified oral care delivery method, hand washing compliance, and head-of-bed elevation compliance.

TSNRP Funding - TSNRP Research Award Categories. TSNRP accepts research proposals for six categories of research in March and November of each year. These categories include: ***Novice Investigator Award -*** awarded to military nurse clinicians with limited research experience and requires a nurse research mentor; ***1, 2, and 3 Year Awards -*** awarded to Active Duty, Reserve, National Guard, and Retired Nurse Corps Officers with research experience; ***Pilot Project Award -*** awarded to provide preliminary data for future research; ***Research Fellow Award -*** to expand the skills of experienced military nurse researchers.

The TSNRP accepts applications for the ***Graduate Research Award*** from October through March of each Fiscal Year. The award supports a dissertation or thesis research project. Applications for the ***Fast Track Award*** are accepted four time each Fiscal Year; the purpose of the award is to facilitate the rapid implementation of short-term research focused on emerging service specific questions or concerns.

***Three-Tiered Proposal Review.***

***Review for Scientific Merit.*** All proposals submitted to the TSNRP for funding are subject to rigorous peer review, designed to evaluate the scientific merit of the research proposals. The review panel is comprised of nationally renowned nurse scientists, selected from the research community for their expertise, publications, and work experience. Military nurse scientists evaluate the proposals for the feasibility of implementing the research in a military environment.

***Review for Programmatic Merit***. Following the scientific merit review, the TSNRP Advisory Council (AC), comprised of six doctorally-prepared nurse scientists, who represent both the Active Duty and Reserve Components from each branch of the military Services, provides the programmatic review. Council members evaluate the proposed research as it relates to the TSNRP goals and priorities.

***Awarding Grants.*** Final funding decisions are based on scientific merit and programmatic evaluations. The TSNRP Executive Board of Directors makes the final grant award decisions. The Executive Board of Directors includes the Corps Chiefs for the three Military Nurse Corps or their designated representatives.

***Fiscal Year 2004 Awards.*** Successful researchers endure a highly competitive and rigorous evaluation process. In 2004, TSNRP awarded twenty-two research grants that focus on operational readiness and care of the Active Duty soldier, sailor, airman, and marine during a time of war. The 2004 research awards are listed below.

- ***Army Nurse Corps Awards*:**

- BG Jenenne Nelson: *Experiences & Patterns of Tobacco Cessation*;
- COL Patricia Patrician: *MiLNOD: Analysis and Expansion*;
- COL (ret.) Holly Kennedy: *Motherhood, Stress & Role Strain in Junior Enlisted Women*;
- LTC Deborah Kenny: *Knowledge to Practice: A Study of the Natural Process*;
- LTC Kimberly Smith: *Effects of Resuscitation Training on BLS Skills*;
- LTC Veronica Thurmond: *Aeromedical Evacuation Needs of War Injured Service Members*;
- MAJ Denise Hopkins: *Motherhood, Stress & Role Strain in Junior Enlisted Women*;
- MAJ Beverly Rose: *Outcomes of a Nurse Managed Diabetes Foot Clinic*;
- MAJ Joseph O'Sullivan: *Effect of Diazoxide on Hemorrhagic Shock*;
- MAJ (ret.) Mary McCarthy: *Perioperative Immunonutrition in Head and Neck Cancer*; and,
- CPT John D. Gordon: *Multi-Dose Vial Contaminates*.

- ***Navy Nurse Corps Awards*:**

- CAPT Reg Williams: *FICS for Sailors: Follow-up Intervention Study*;
- CAPT Charles Vacchiano: *Oxidative Stress 7 Pulmonary Injury in United States Navy Divers*;
- CAPT Min Chung Park: *Unintended Pregnancy Prevention and Active Duty Women*;
- CAPT Catherine Cox: *The Retention of Recalled Navy Nurse Reservists Following Operation Iraqi Freedom*;
- CDR Mark Larsen: *The Effect of Heat Exposure in Rat Hypothalamus*;
- LCDR Paul Cornett: *Effects of Volatile Anesthetics on TRPV1 and Surgical Pain*; and,
- LCDR Mary White: *Coping Intervention for Children of Deployed Parents*.

- ***Air Force Nurse Corps Awards*:**

- Col Penny Pierce: *Women Veterans Project: Operation Iraqi Freedom*;
- Col Penny Pierce: *Work, Family, and Stress: Deployment Resilience and Retention*;
- Lt Col (ret.) Elizabeth Bridges: *Wartime Critical Care Air Transport*; and,
- Lt Col Beverly Smith: *Operational Healthcare: Ready to Care for Our Warriors*.

Post Grant Award Activities and Support.

***Grant Management Workshop.*** Since 1998, the TSNRP has provided a three-day grant management workshop for newly funded principal investigators and their project directors. The workshop is designed to provide education on Federal, DoD, and USU regulations and requirements, as well as practical information on managing a research grant. Presentations at the 2004 workshop included didactic sessions, case studies, and small group discussions in areas such as: grant agreement regulations and cost principles; Federal and

local institutional review board (IRB) requirements; research integrity; copyright laws; ethics in research; the investigator's role and responsibilities; assistance visits; reporting requirements; and, budget management. The workshop provides an opportunity for investigators to meet the TSNRP staff and to establish a working relationship. It is also a venue for the investigators to network with other military nurse researchers. The response to the workshop was overwhelmingly positive.

***Grant Management.*** Two full-time registered nurse grant managers provide monitoring and timely assistance for over 70 active research grants and a portfolio totaling 266 studies. Investigators receive assistance from TSNRP grant managers for a myriad of issues, to include: requests for changes in research design and study personnel; additional funding and extensions to the study period; disposition of equipment; monitoring and tracking of regulatory compliance and human subject protection training; and, study progress.

***Final Reports.*** Final Reports are required in the Terms and Conditions set forth for grant awardees. Expert nurse scientists review non-dissertation/thesis Final Reports to ensure scientific completeness.

Dissemination of Research Findings.

Dissemination is imperative for the success of the program and to ensure that military nurse researchers actively contribute to the on-going development of nursing science. The TSNRP publishes abstracts from final reports on its website, <*www.usuhs.mil/tsnrp*>, and research findings from these reports on the National Technical Information System (NTIS) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) so the public can access TSNRP Researchers' findings.

The TSNRP researchers are actively engaged in presenting their findings at nationally recognized conferences and research competitions. TSNRP-funded study findings are published in peer-reviewed journals including, but not limited to, the *American Journal of Epidemiology*, *Biological Research for Nursing*, the *Journal of the American Psychiatric Nurses Association*, the *Journal of General Internal Medicine*, the *Journal of Nursing Scholarship*, *Journal of Traumatic Stress*, *Military Medicine*, *Neuroscience Research*, and *Nurse Practitioner*.

***Awards, Presentations, Publications (selected examples)***.

The TSNRP supported the ***16th Annual Karen A. Rieder Nursing Research Poster Session*** at the 110th Annual Meeting of the Association of Military Surgeons of the United States. Over eighteen of the program's fifty-six presenters were TSNRP investigators (32%).

**Colonel Patricia A. Patrician, AN, USA,** received the ***2004 Anita Newcomb McGee Award*** from the Daughters of the American Revolution (DAR) on July 9, 2004. DAR presents this award annually to an active-duty Army Nurse Corps officer who exemplifies excellence in professional and military nursing. Colonel Patrician was the Chief of Nursing Research at the Walter Reed Army Medical Center,

administering $2.5 million in extramural funding, when she was selected for this award. She is the author of eight publications and has four manuscripts in review; she is also the principal investigator on three large studies. Her TSNRP-funded study on medication errors led to a renewed emphasis on developing a culture of non-retribution and improved safety for medication delivery. Currently, Colonel Patrician is the Chief of the Department of Nursing Science at the AMEDD Center and School, in San Antonio, Texas.

**Colonel (ret.) Bonnie Jennings, AN, USA,** presented findings from her study, ***Care Coordination for Active Duty Soldiers on Profile***, at the National Congress on the State of the Science in Nursing Research, in Washington, D.C., during October of 2004. Colonel Jennings' study sought to create an infrastructure to improve the care coordination for active duty soldiers.

**Lieutenant Colonel Deborah Kenny, AN, USA,** and **Commander Maggie Richard, NC, USN,** won the ***Phyllis J. Verhonick Nursing Research Award*** for their presentation, *A TriService Integrated Approach to Evidence Based Practice*, at the Phyllis J. Verhonick Research Course, in San Antonio, Texas, during April of 2004.

**Lieutenant Colonel (ret.) Elizabeth Bridges, USAF, NC,** conducted the TSNRP study, *Cognitive Assessment: Wartime Competencies for the USAF Nurse*. This study used a state-of-the-art human patient simulator, *STAN*, to identify areas for improved clinical readiness preparation. ***An outcome of this study was a validated cognitive test that focuses on operational nursing care. This instrument has been distributed to nursing leaders in Active Duty, Guard, and Reserve Units and is available on-line through the TSNRP and Air Force nursing websites.*** Doctor Bridges presented her findings to over 300 nurses at the Federal Chiefs Symposium at the 110th Meeting of the Association of Military Surgeons of the United States. Participants expressed great excitement about the utility of her results, the availability of the test, and her focus on the development of critical thinking skills. She was asked to distribute her training materials on an Air Force-wide basis.

In September of 2004, Dr. Bridges presented examples from a TSNRP-funded research program conducted at the Wilford Hall Medical Center on ***Care in the Air*** to over 100 nurse scientists from across the United States at the Friends of the National Institutes of Nursing Research (FNINR) Conference. ***This study focused on the provision of military nursing care under field conditions and aeromedical evacuation.***

**Commander Jacque Rychnovsky, NC, USN,** was awarded 1st Place for Research Findings for the study, ***Postpartum Fatigue in the Active Duty Military Woman***, at the Sigma Theta Tau International Nursing Research Conference, *Nursing Odyssey 2004: Charting a New Course in Nursing*, held in Southern California. Commander Rychnovsky also presented this study at the *16th Annual Karen A. Rieder Nursing Research Poster Session* and for the Federal Service Nursing Research Council at the 110th Meeting of the Association of Military Surgeons of the United States.

**Commander Linnea Axman, NC, USN,** was awarded 3rd Place for Research Findings for her study, ***Development of the Participatory Action Empowerment Measure***, at the Sigma Theta Tau International Nursing Research Conference, *Nursing Odyssey 2004: Charting a New Course in Nursing*.

**Commander Maggie Richard, NC, USN,** published an article in the Navy Nurse Corps Newsletter entitled, *Catch the Evidence Based Practice Wave*. This article describes the process she and her team of military and civilian nurses used at the National Naval Medical Center to develop and deploy an evidence-based pain monitoring system.

**Lieutenant Commander George A. Zangaro, NC, USN,** presented *Meta Analysis of the Reliability and Validity of the Index of Work Satisfaction* findings from his TSNRP-funded study, at the University of Maryland's Annual Research Day, held at the University of Maryland Baltimore County Campus, in April of 2004. LCDR Zangaro won ***First Place in the Nursing Category*** for his work on this study.

Future Direction.

***TriService Nursing Research Program.*** The TriService Nursing Research Program is rapidly outgrowing its research study database. Plans are being made to upgrade to a more powerful and robust system capable of collecting on-line research proposals.

***Resource Center for Excellence in Military Nursing.*** In 2005, the Resource Center will introduce an exciting, redesigned Grant Camp Program. The program will now offer an additional course entitled, *Research Decision-Making for Novice Nurse Researchers*, to address the needs of the more novice researchers. Participants will learn how to develop research ideas and how to develop these ideas into proposals. Successful participants will be invited to Grant Camp I. Grant Camp II will include *Grant Camp I* participants who demonstrate sufficient refinement to their research proposals, during the grant-writing workshop.

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